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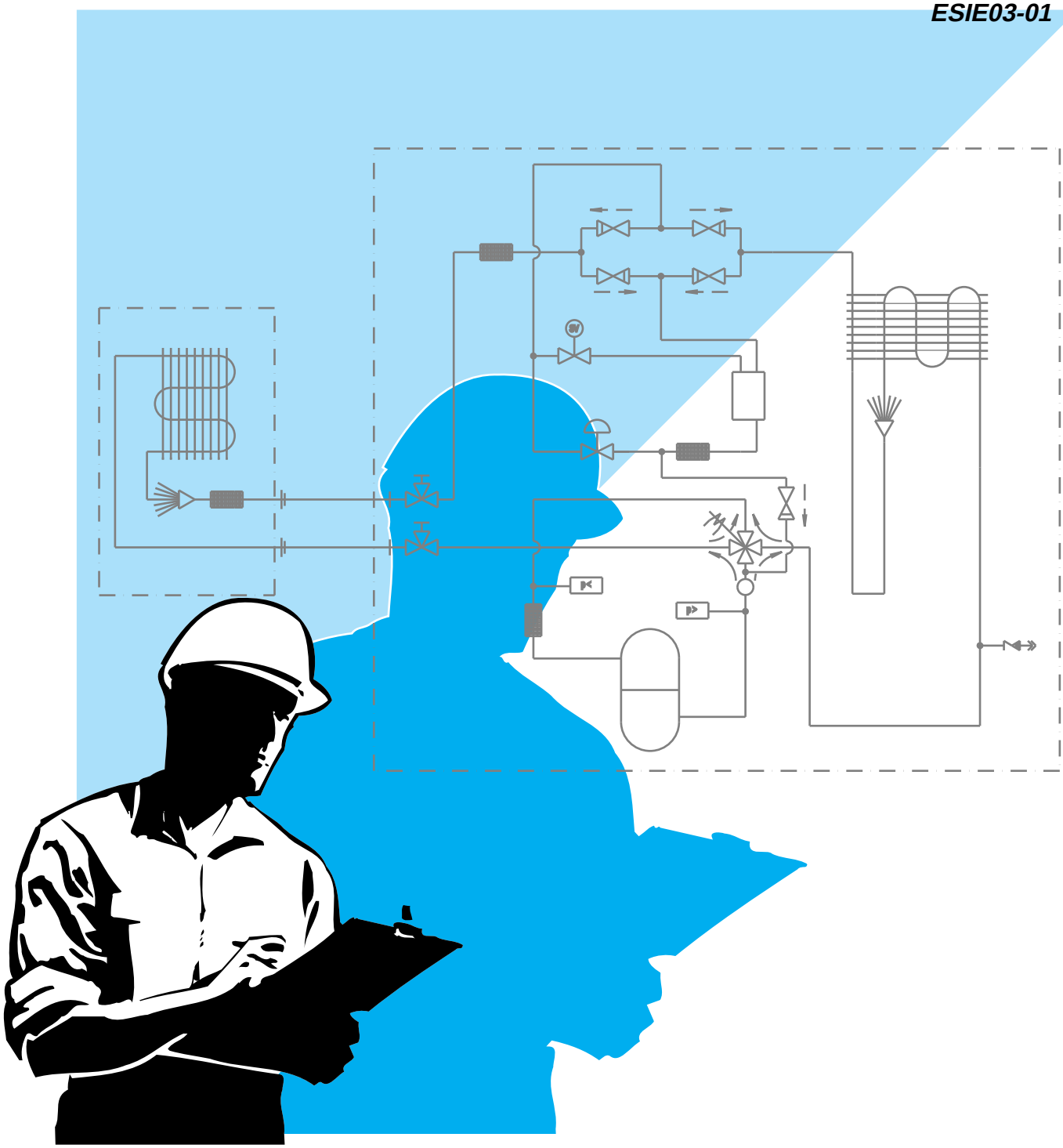

Service Manual
Sky Air R407C
L-series

DAIKIN EUROPE NV

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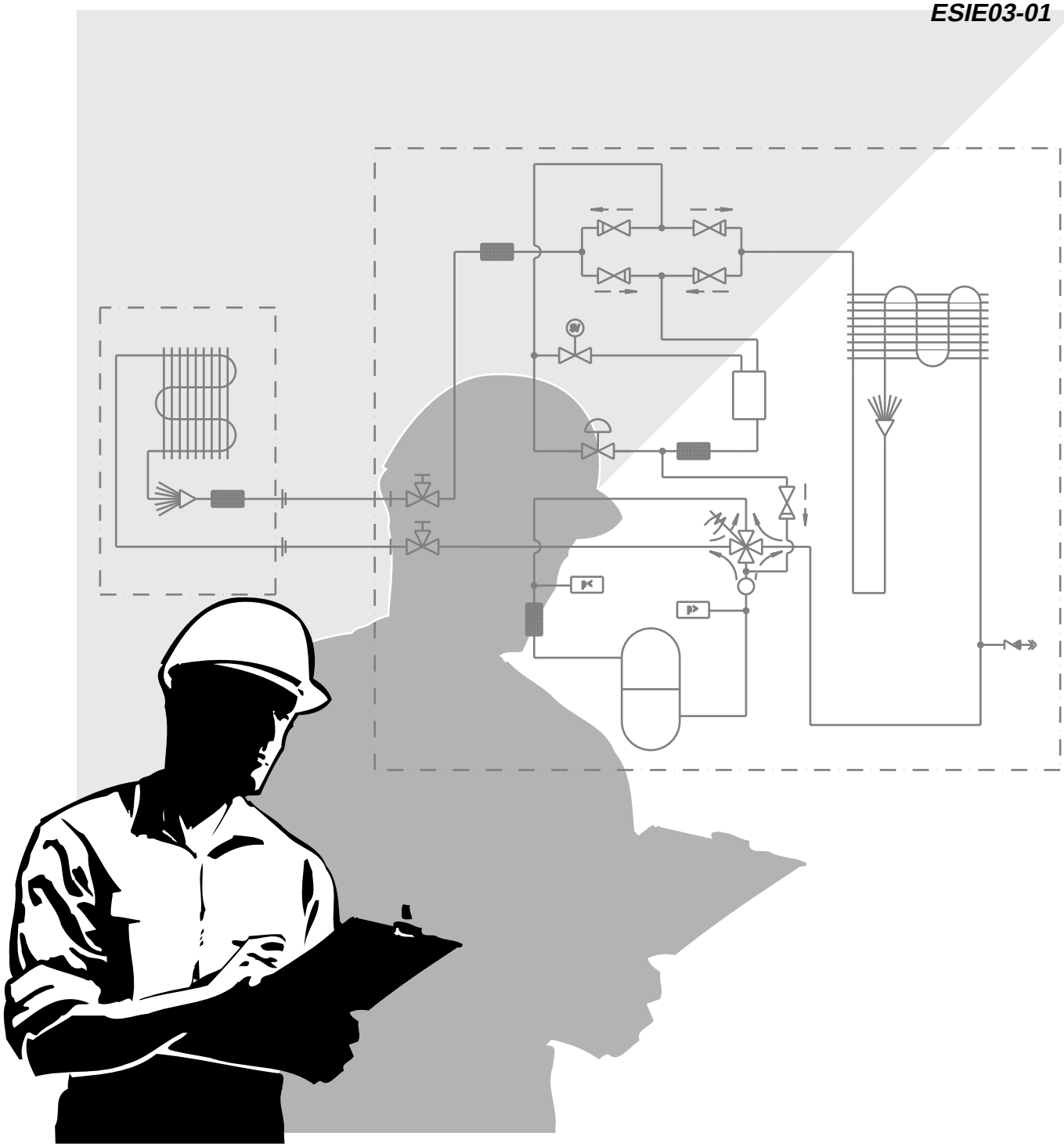

Service Manual
Sky Air R407C
L-series

DAIKIN EUROPE NV

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1 Introduction

1.1 About This Manual

Target group

This service manual is intended for and should only be used by qualified engineers.

Purpose of this manual

This service manual contains all the information you need to do the necessary repair and maintenance tasks for the Sky Air L-series room air conditioners.

Five parts

This service manual consists of an introduction, five parts and an index:

Part	See page
Part 1–System Outline	1–1
Part 2–Functional Description	2–1
Part 3–Troubleshooting	3–1
Part 4–Commissioning and Test Run	4–1
Part 5–Disassembly and Maintenance	5–1

Introduction overview

The introduction contains the following topics:

Topic	See page
1.2–Combination Overview: Outdoor Units of the Sky Air L-Series	x

1.2 Combination Overview: Outdoor Units of the Sky Air L-Series

Introduction

In the tables in this section:

- ➤ “P” stands for pair combination.
- ➤ “T” stands for twin, triple or double twin combination.

FHYCP, FHYKP and FHYP

The table below contains the possible combinations between indoor units (FHYCP, FHYKP and FHYP) and outdoor units of the Sky Air L-series.

Outdoor unit \ Indoor unit		FHYCP35B7V1	FHYCP45B7V1	FHYCP60B7V1	FHYCP71B7V1	FHYCP100B7V1	FHYCP125B7V1	FHYKP35BV17	FHYKP45BV17	FHYKP60BV17	FHYKP71BV17	FHYP35BV1	FHYP45BV1	FHYP60BV1	FHYP71BV1	FHYP100BV1	FHYP125BV1
Large c/o	RP71L7V1	T	—	—	P	—	—	T	—	—	P	T	—	—	P	—	—
	RP71L7W1	T	—	—	P	—	—	T	—	—	P	T		—	P	—	—
	RP100L7V1	T	T	T	T	P	—	T	T	T	T	T	T	T	T	P	—
	RP100L7W1	T	T	T	T	P	—	T	T	T	T	T	T	T	T	P	—
	RP125L7W1	T	T	T	T	—	P	T	T	T	T	T	T	T	T	—	P
Large h/p	RYP71L7V1	T	—	—	P	—	—	T	—	—	P	T	—	—	P	—	—
	RYP71L7W1	T	—	—	P	—	—	T	—	—	P	T		—	P	—	—
	RYP100L7V1	T	T	T	T	P	—	T	T	T	T	T	T	T	T	P	—
	RYP100L7W1	T	T	T	T	P	—	T	T	T	T	T	T	T	T	P	—
	RYP125L7W1	T	T	T	T	—	P	T	T	T	T	T	T	T	T	—	P

FUYP, FAYP, FHYBP, FDYMP and FDYP

The table below contains the possible combinations between indoor units (FUYP, FAYP, FHYBP, FDYMP and FDYP) and outdoor units of the Sky Air L-series.

Outdoor unit \ Indoor unit		FUYP71BV17	FUYP100BV17	FUYP125BV17	FAYP71LV1	FAYP71LV1	FAYP100BV1	FHYBP35B7V1	FHYBP45B7V1	FHYBP60B7V1	FHYBP71B7V1	FHYBP100B7V1	FHYBP125B7V1	FDYMP71L7V1	FDYMP100L7V1	FDYMP125L7V1	FDYP125B7V1
Large c/o	RP71L7V1	P	—	—	P	P	—	T	—	—	P	—	—	P	—	—	—
	RP71L7W1	P	—	—	P	P	—	T	—	—	P	—	—	P	—	—	—
	RP100L7V1	T	P	—	T	T	P	T	T	T	T	P	—	T	P	—	—
	RP100L7W1	T	P	—	T	T	P	T	T	T	T	P	—	T	P	—	—
	RP125L7W1	T	—	P	T	T	—	T	T	T	T	—	P	T	—	P	P
Large h/p	RYP71L7V1	P	—	—	P	P	—	T	—	—	P	—	—	P	—	—	—
	RYP71L7W1	P	—	—	P	P	—	T	—	—	P	—	—	P	—	—	—
	RYP100L7V1	T	P	—	T	T	P	T	T	T	T	P	—	T	P	—	—
	RYP100L7W1	T	P	—	T	T	P	T	T	T	T	P	—	T	P	—	—
	RYP125L7W1	T	—	P	T	T	—	T	T	T	T	—	P	T	—	P	P

Part 1
System Outline

What is in this part? This part contains the following chapters:

Chapter	See page
1–General Outline: Outdoor Units	1–3
2–General Outline: Indoor Units	1–13
3–Specifications	1–47
4–Functional Diagrams	1–63
5–Switch Box Layout	1–77
6–Wiring Diagrams: Outdoor Units	1–91
7–Wiring Diagrams: Indoor Units	1–99
8–PCB Layout	1–111

1 General Outline: Outdoor Units

1.1 What Is in This Chapter?

Introduction

This chapter contains the following information on the outdoor units:

- Outlook and dimensions
- Installation and service space
- Components.

General outline

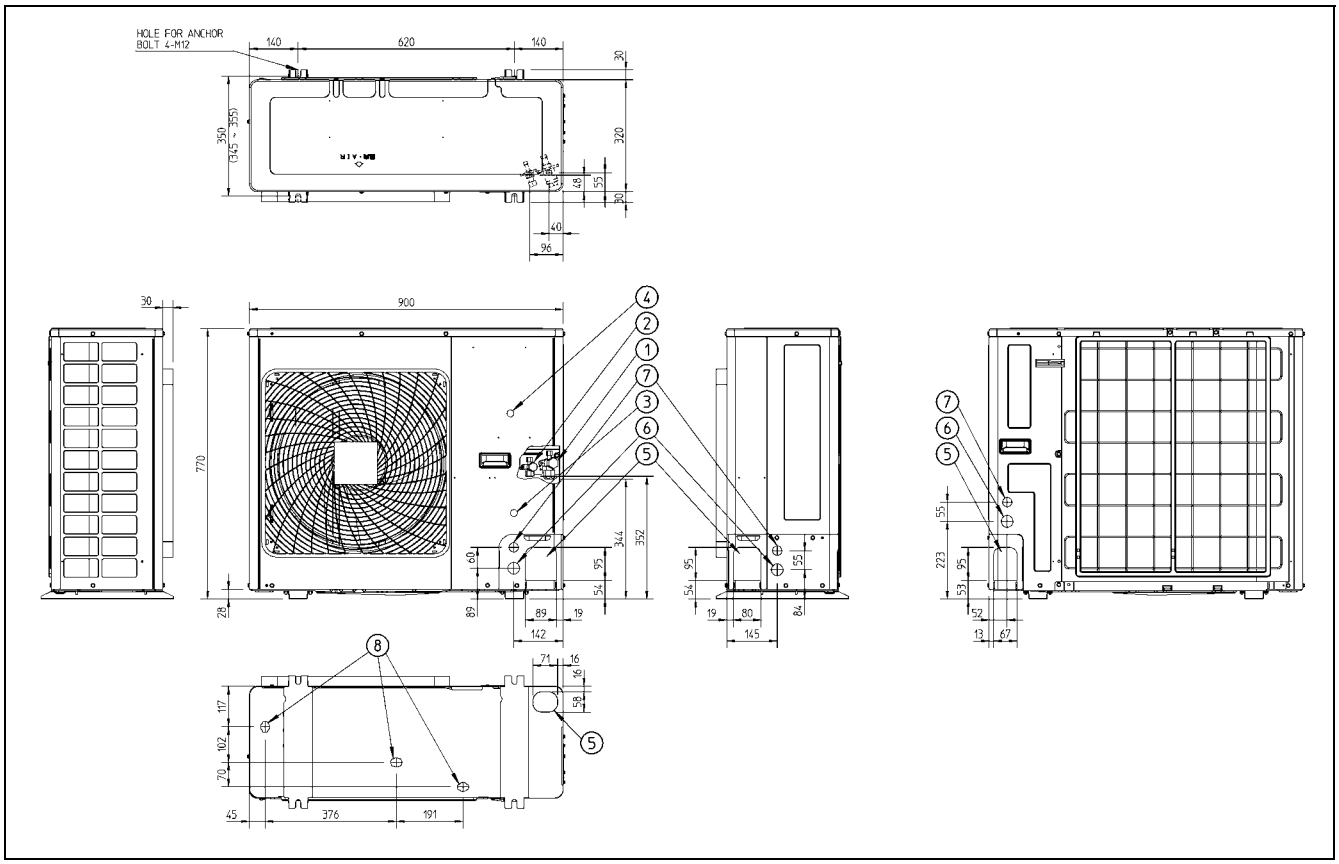
This chapter contains the following general outlines:

General outline	See page
1.2–RP71L7V1, RP71L7W1, RYP71L7V1, RYP71L7W1	1–4
1.3–RP100L7V1, RP100L7W1, RYP100L7V1, RYP100L7W1	1–6
1.4–RP125L7W1 and RYP125L7W1	1–8
1.5–RP71L7V1, RP71L7W1, RP100L7V1, RP100L7W1, RP125L7W1, RYP71L7V1, RYP71L7W1, RYP100L7V1, RYP100L7W1, RYP125L7W1: Installation and Service Space	1–10

1.2 RP71L7V1, RP71L7W1, RYP71L7V1, RYP71L7W1

Outlook and dimensions

The illustration below shows the outlook and the dimensions of the unit (mm).



Installation and service space

See page 1–10.

Components

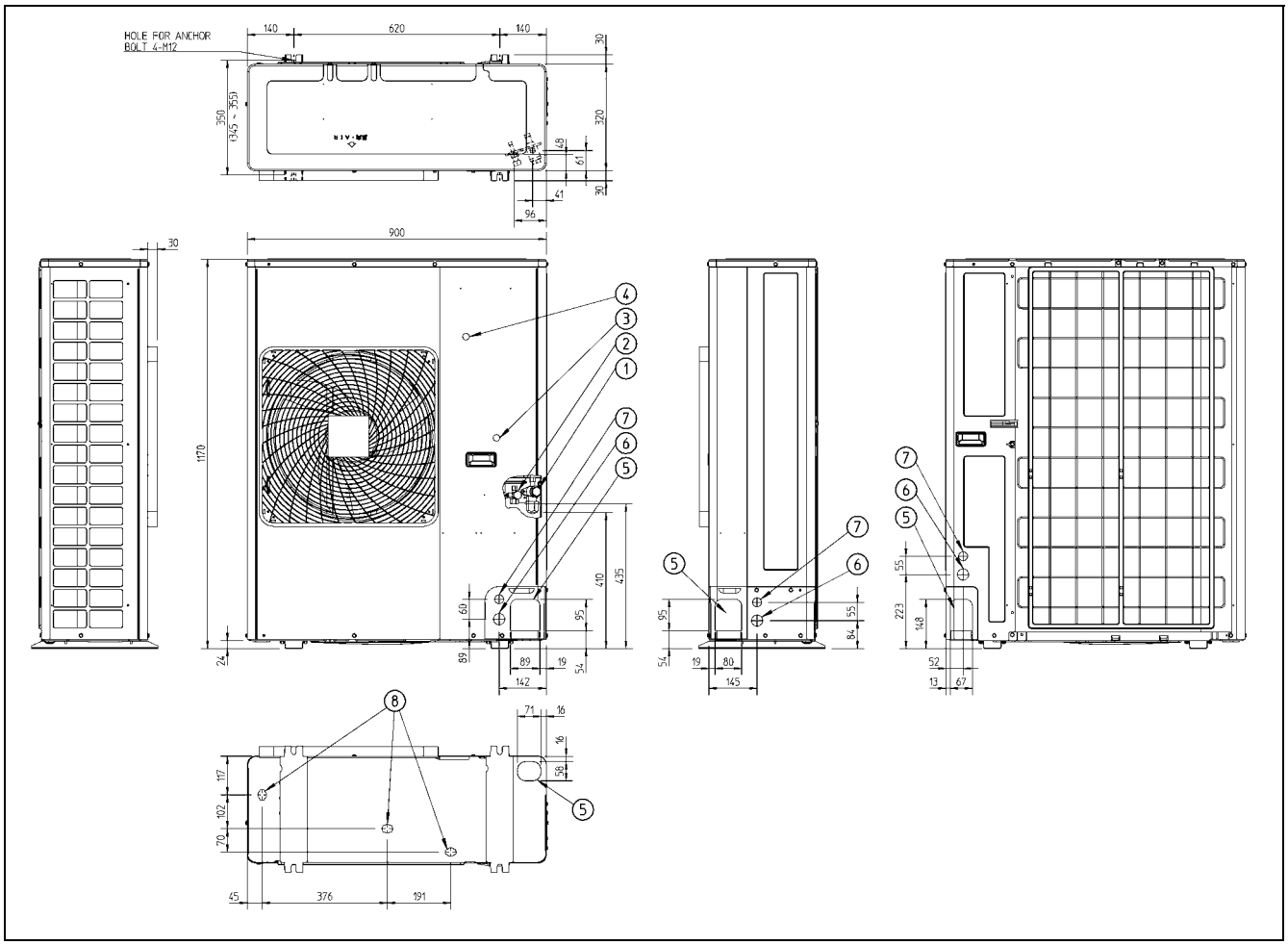
The table below contains the different components of the unit.

No.	Component
1	Gas pipe connection
2	Liquid pipe connection
3	Service port (inside the unit)
4	Grounding terminal M5 (inside the switch box)
5	Refrigerant piping intake
6	Power supply wiring intake
7	Control wiring intake
8	Drain outlet

1.3 RP100L7V1, RP100L7W1, RYP100L7V1, RYP100L7W1

Outlook and dimensions

The illustration below shows the outlook and the dimensions of the unit (mm).



Installation and service space

See page 1–10.

Components

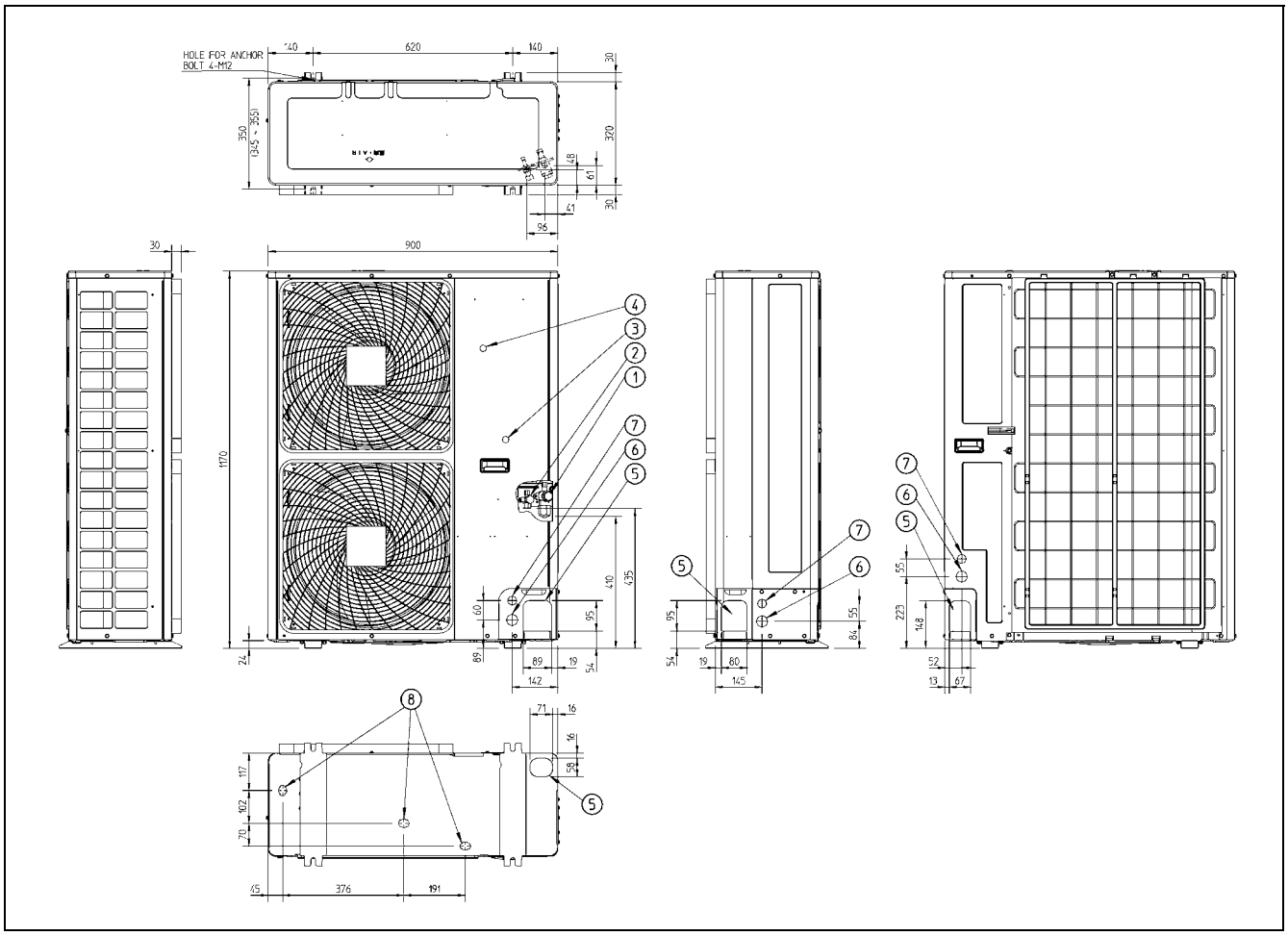
The table below contains the different components of the unit.

No.	Component
1	Gas pipe connection
2	Liquid pipe connection
3	Service port (inside the unit)
4	Grounding terminal M5 (inside the switch box)
5	Refrigerant piping intake
6	Power supply wiring intake
7	Control wiring intake
8	Drain outlet

1.4 RP125L7W1 and RYP125L7W1

Outlook and dimensions

The illustration below shows the outlook and the dimensions of the unit (mm).



Installation and service space

See page 1–10.

Components

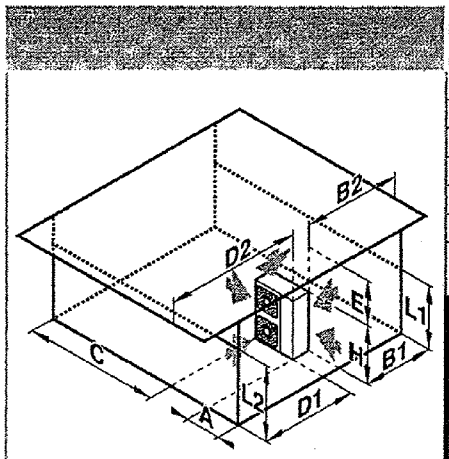
The table below contains the different components of the unit.

No.	Component
1	Gas pipe connection
2	Liquid pipe connection
3	Service port (inside the unit)
4	Grounding terminal M5 (inside the switch box)
5	Refrigerant piping intake
6	Power supply wiring intake
7	Control wiring intake
8	Drain outlet

1.5 RP71L7V1, RP71L7W1, RP100L7V1, RP100L7W1, RP125L7W1, RYP71L7V1, RYP71L7W1, RYP100L7V1, RYP100L7W1, RYP125L7W1: Installation and Service Space

Non stacked

The illustrations and table below show the required installation and service space (mm). The values in brackets are for the 100 and 125 class.



							A	B1	B2	C	D1	D2	E	L1/L2	
✓								≥50(100)							
✓		✓	✓				≥100	≥100		≥100					
✓				✓				≥100				≤500	≥1000		
✓		✓	✓	✓			≥150	≥150		≥150		≤500	≥1000		
	✓										≥500				
	✓			✓					≤500		≥500		≥1000		
✓	✓				L1<L2			≥50(100)			≥500				
					L2<L1			≥50(100)			≥500				
✓	✓			✓	L1<L2	L1≤H		≥150(250)	≤500		≥750		≥1000	0<L1≤1/2H	1
											≥1000			0<L1≤1/2H	
						H<L1	L1≤H								
					L2<L1	L2≤H		≥50(100)			≥500	≥500	≥1000	0<L2≤1/2H	
								≥100(200)						1/2H<L2≤H	
						H<L2	L2≤H								
✓		✓	✓				≥200	≥200(300)		≥1000					
✓		✓	✓	✓			≥200	≥200(300)		≥1000		≤500	≥1000		
	✓										≥1000				
	✓			✓					≤500		≥1000		≥1000		
✓	✓				L1<L2			≥200(300)			≥1000				
					L2<L1			≥150(250)			≥1000			0<L2≤1/2H	
								≥200(300)						1/2H<L2≤H	
✓	✓			✓	L1<L2	L1≤H		≥200(300)	≤500		≥1000		≥1000	0<L1≤1/2H	1
											≥1250			1/2H<L1≤H	
						H<L1	L1≤H								
					L2<L1	L2≤H		≥150(250)			≥1000	≤500	≥1000	0<L2≤1/2H	2
								≥200(300)						1/2H<L2≤H	
						H<L2	L2≤H								

Suction side obstacle

Discharge side obstacle

Left side obstacle

Right side obstacle

Top side obstacle

✓ Obstacle is present

1 In these cases, close the bottom of the installation frame to prevent discharged air from being bypassed

2 In these cases, only 2 units can be installed

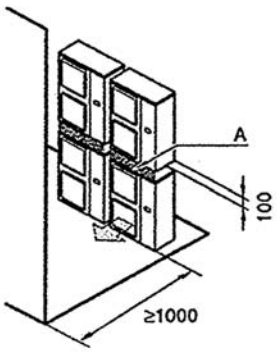
This situation is not allowed

Stacked

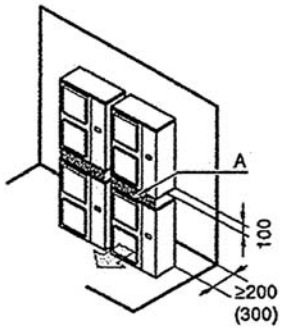
The illustration below shows the required installation and service space (mm). The values in brackets are for the 100 and 125 class.

- ➤ Do not stack more than one unit.
- ➤ ± 100 mm is required for the drain pipe.
- ➤ Seal A in order to prevent outlet air from bypassing.

With obstacles in front of the air outlet side



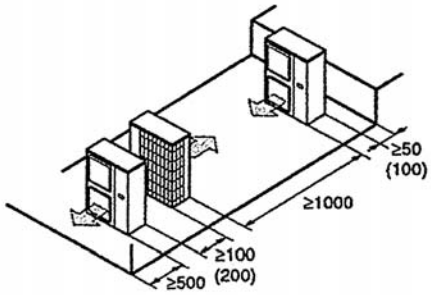
With obstacles in front of the air inlet side



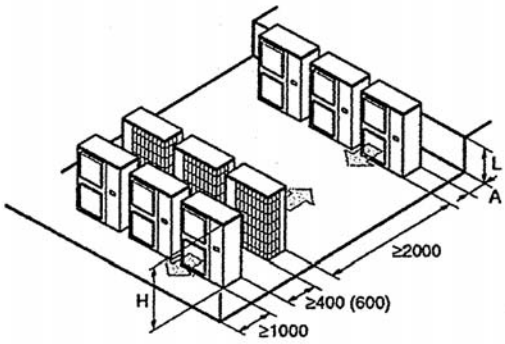
Multiple rows

The illustration below shows the required installation and service space (mm). The values in brackets are for the 100 and 125 class.

One unit per row



Multiple units per row



	L	A
L ≤ H	0<L≤1/2H	150 (250)
	1/2H < L	200 (300)
H < L	installation impossible	

2 General Outline: Indoor Units

2.1 What Is in This Chapter?

Introduction

This chapter contains the following information on the indoor units:

- ➤ Outlook and dimensions
- ➤ Installation and service space
- ➤ Components.

General outline

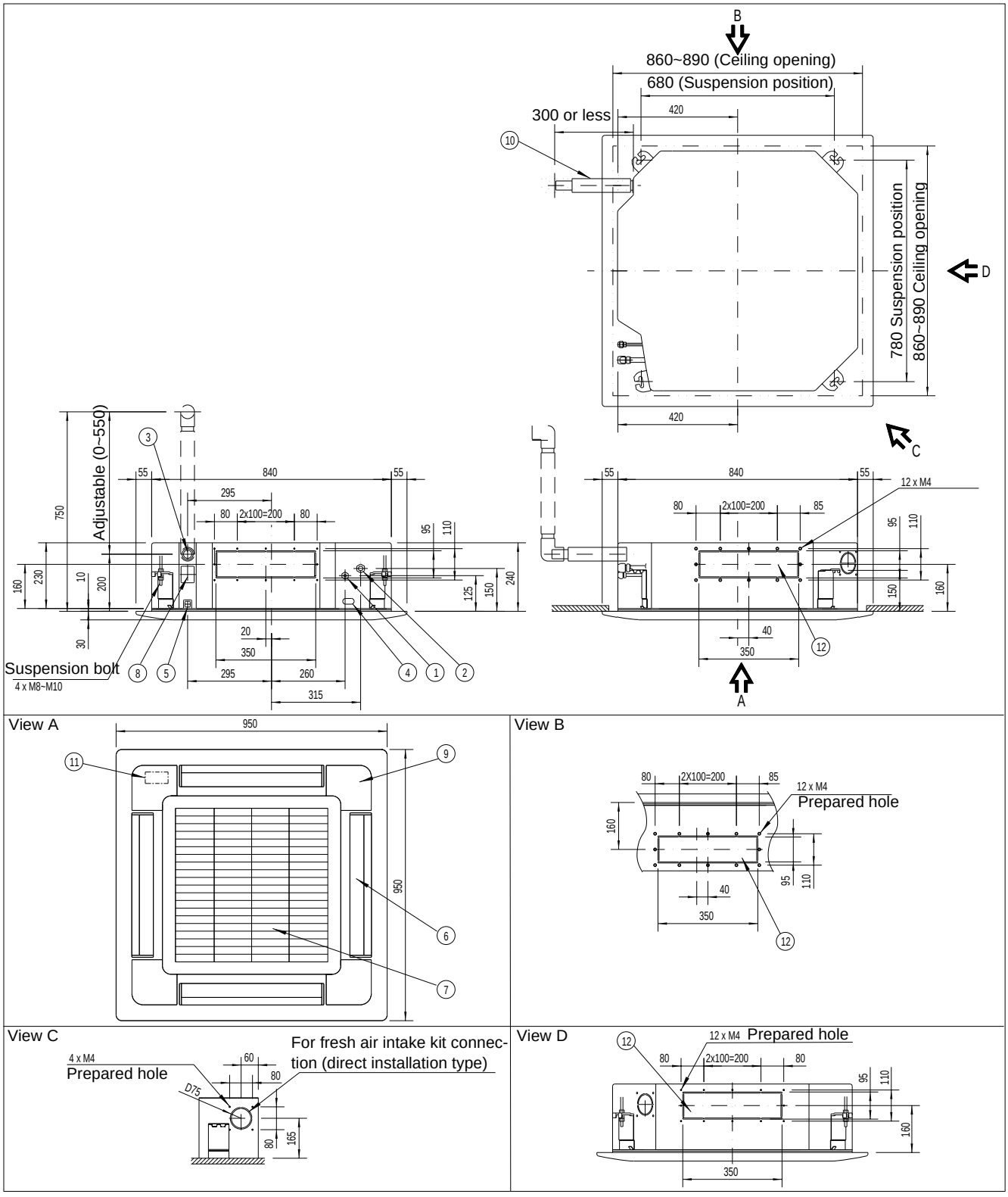
This chapter contains the following general outlines:

General outline	See page
2.2–FHYCP35B7V1, FHYCP45B7V1, FHYCP60B7V1 and FHYCP71B7V1	1–14
2.3–FHYBP35B7V1 and FHYBP45B7V1	1–16
2.4–FHYBP60B7V1 and FHYBP71B7V1	1–17
2.5–FHYBP100B7V1 and FHYBP125B7V1	1–18
2.6–FHYCP100B7V1 and FHYCP125B7V1	1–19
2.7–FDYP125B7V1	1–21
2.8–FHYP35BV1 and FHYP45BV1	1–22
2.8–FHYP35BV1 and FHYP45BV1	1–22
2.9–FHYP60BV1 and FHYP71BV1	1–24
2.10–FHYP100BV1	1–26
2.11–FHYP125BV1	1–28
2.12–FUYP71BV17	1–30
2.13–FUYP100BV17 and FUYP125BV17	1–32
2.14–FAYP71LV1	1–34
2.15–FAYP100BV1	1–36
2.16–FHYKP35BV17 and FHYKP45BV17	1–38
2.17–FHYKP60BV17 and FHYKP71BV17	1–40
2.18–FDYMP71~100L7V1	1–42
2.19–FDYMP125L7V1	1–44

2.2 FHYCP35B7V1, FHYCP45B7V1, FHYCP60B7V1 and FHYCP71B7V1

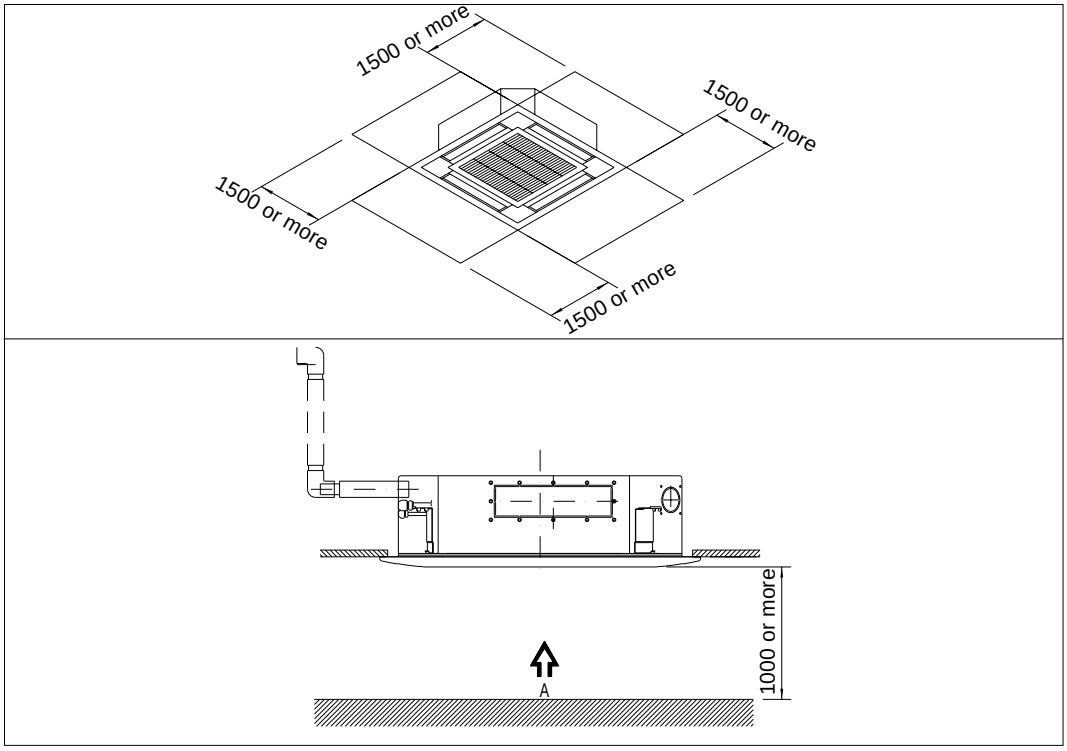
Outlook and dimensions

The illustration below shows the outlook and the dimensions of the unit (mm).



Installation and service space

The illustration below shows the required installation and service space. When a discharge grille is closed (e.g. 3-way blow application), the required space is 200 mm or more (mm).



Components

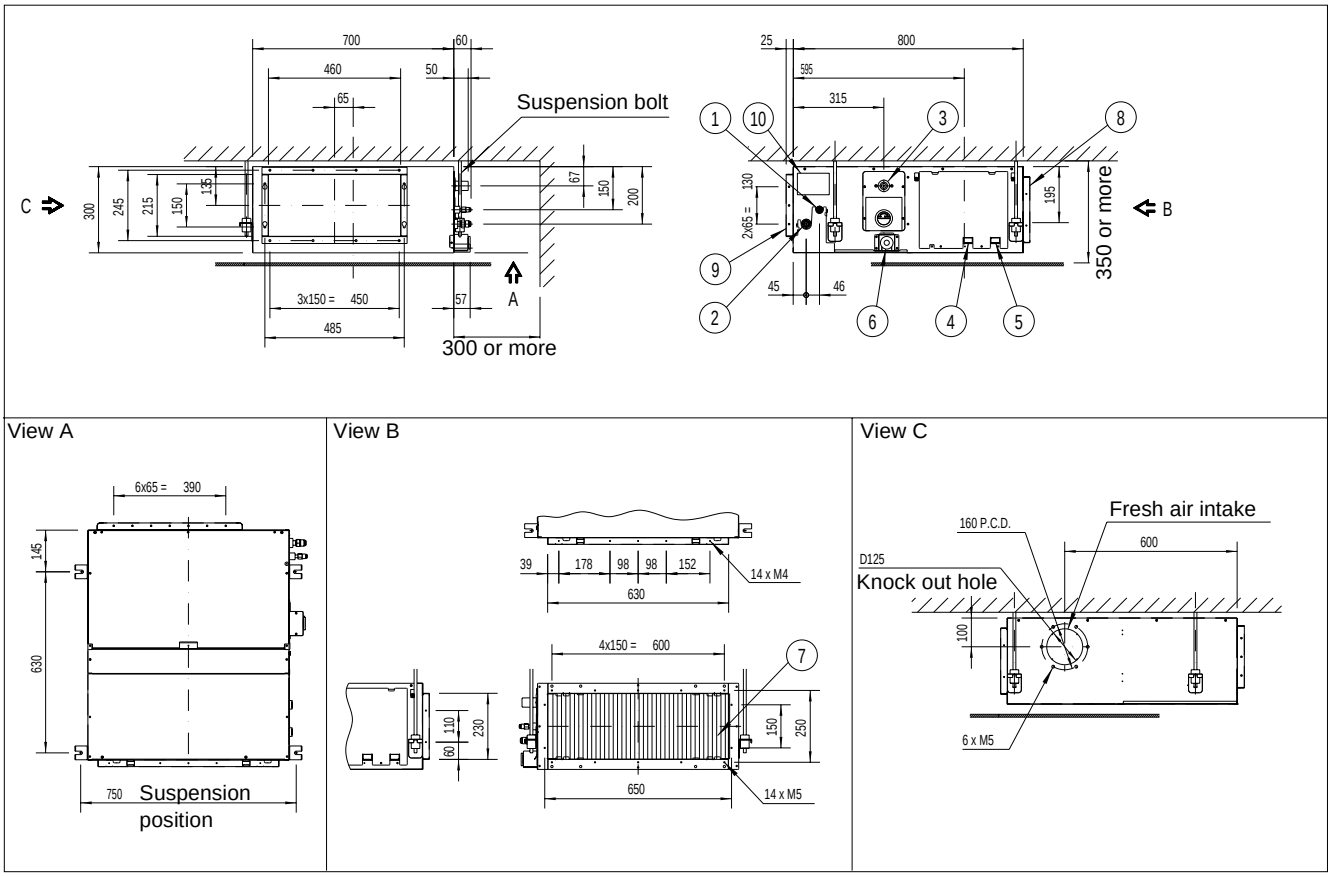
The table below contains the different components of the unit.

No.	Component
1	Liquid pipe connection
2	Gas pipe connection
3	Drain pipe connection
4	Power supply connection
5	Transmission wiring connection
6	Air discharge grille
7	Air suction grille
8	Water supply intake
9	Corner decoration cover
10	Drain hose
11	In case a wireless remote controller is used, this position is a signal receiver.
12	Branch duct connection

2.3 FHYBP35B7V1 and FHYBP45B7V1

Outlook, dimensions and installation and service space

The illustration below shows the outlook, the dimensions and the installation and service space of the unit (mm).



Components

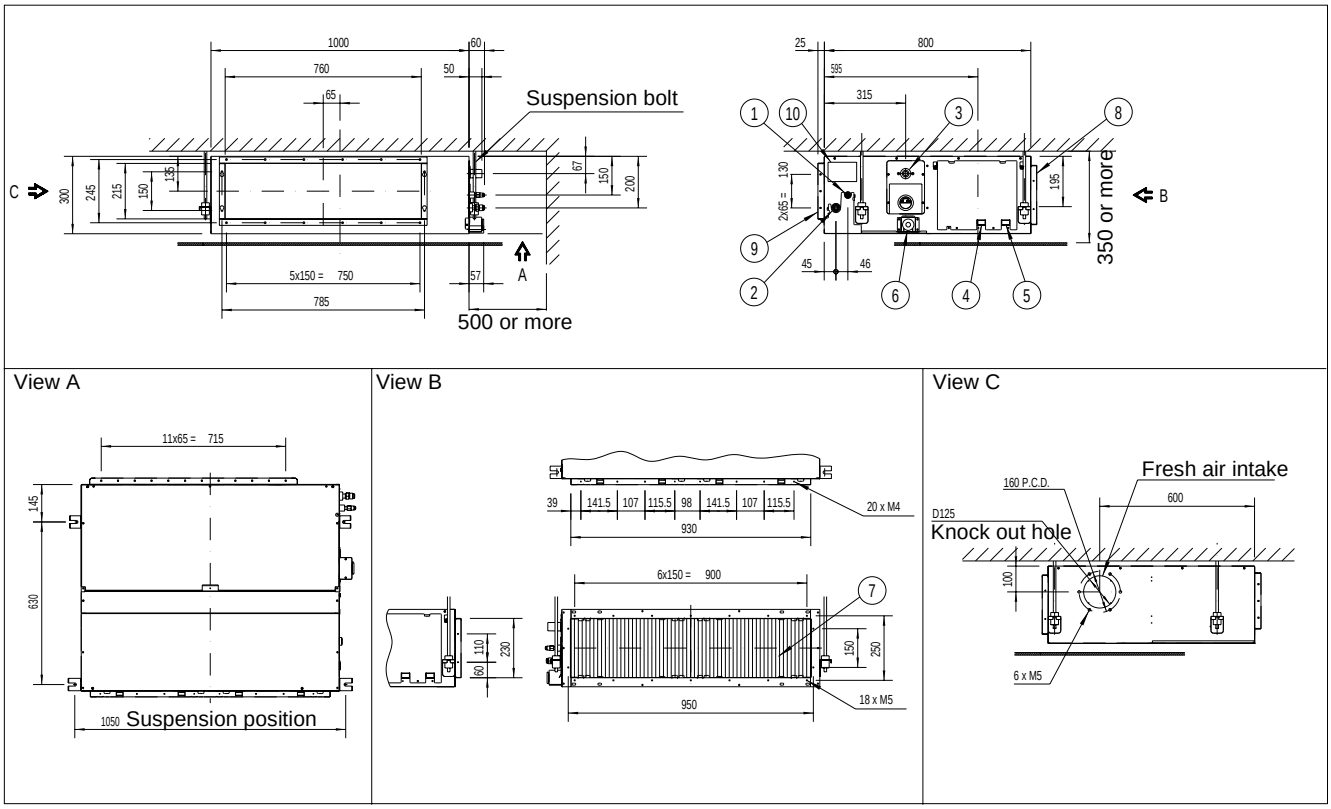
The table below contains the different components of the unit.

No.	Component
1	Liquid pipe connection
2	Gas pipe connection
3	Drain pipe connection (O.D. 32 mm, I.D. 25 mm)
4	Remote controller wiring connection
5	Power supply connection
6	Drain hole (O.D. 32 mm, I.D. 25 mm)
7	Air filter
8	Air suction side
9	Air discharge side
10	Name plate

2.4 FHYBP60B7V1 and FHYBP71B7V1

Outlook, dimensions and installation and service space

The illustration below shows the outlook, the dimensions and the installation and service space of the unit (mm).



Components

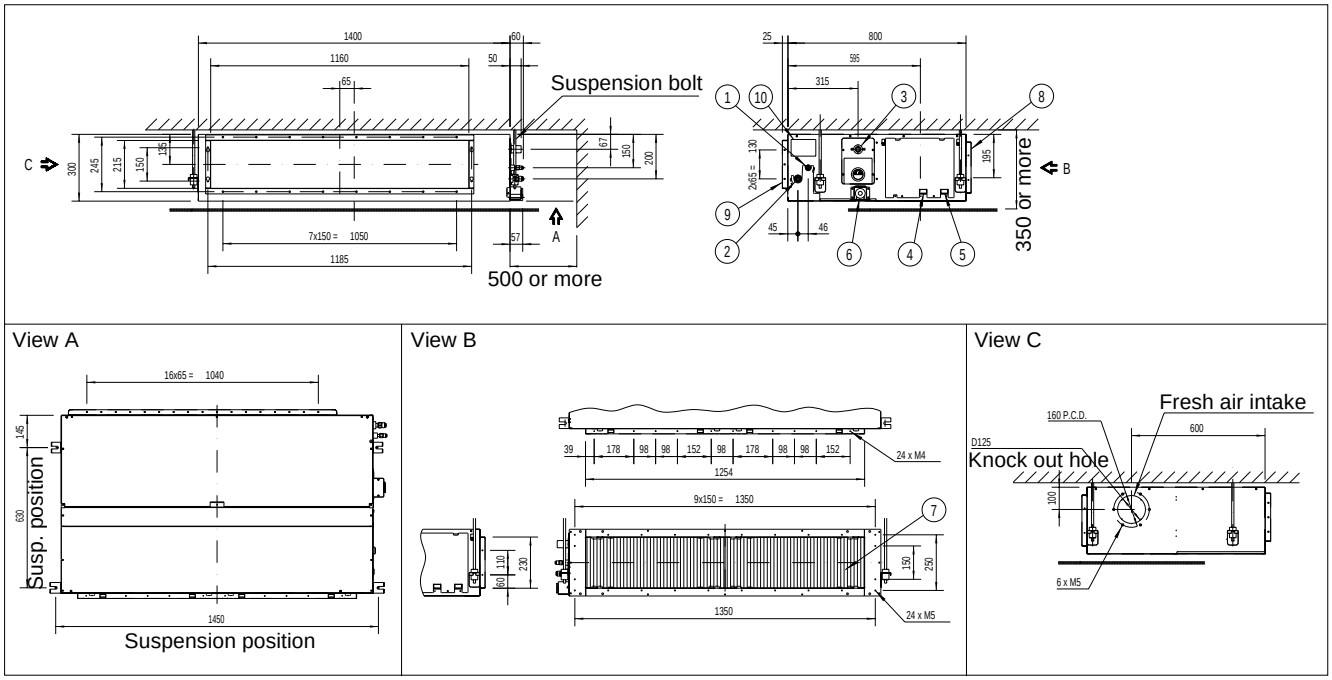
The table below contains the different components of the unit.

No.	Component
1	Liquid pipe connection
2	Gas pipe connection
3	Drain pipe connection (O.D. 32 mm, I.D. 25 mm)
4	Remote controller wiring connection
5	Power supply connection
6	Drain hole (O.D. 32 mm, I.D. 25 mm)
7	Air filter
8	Air suction side
9	Air discharge side
10	Name plate

2.5 FHYBP100B7V1 and FHYBP125B7V1

Outlook, dimensions and installation and service space

The illustration below shows the outlook, the dimensions and the installation and service space of the unit (mm).



Components

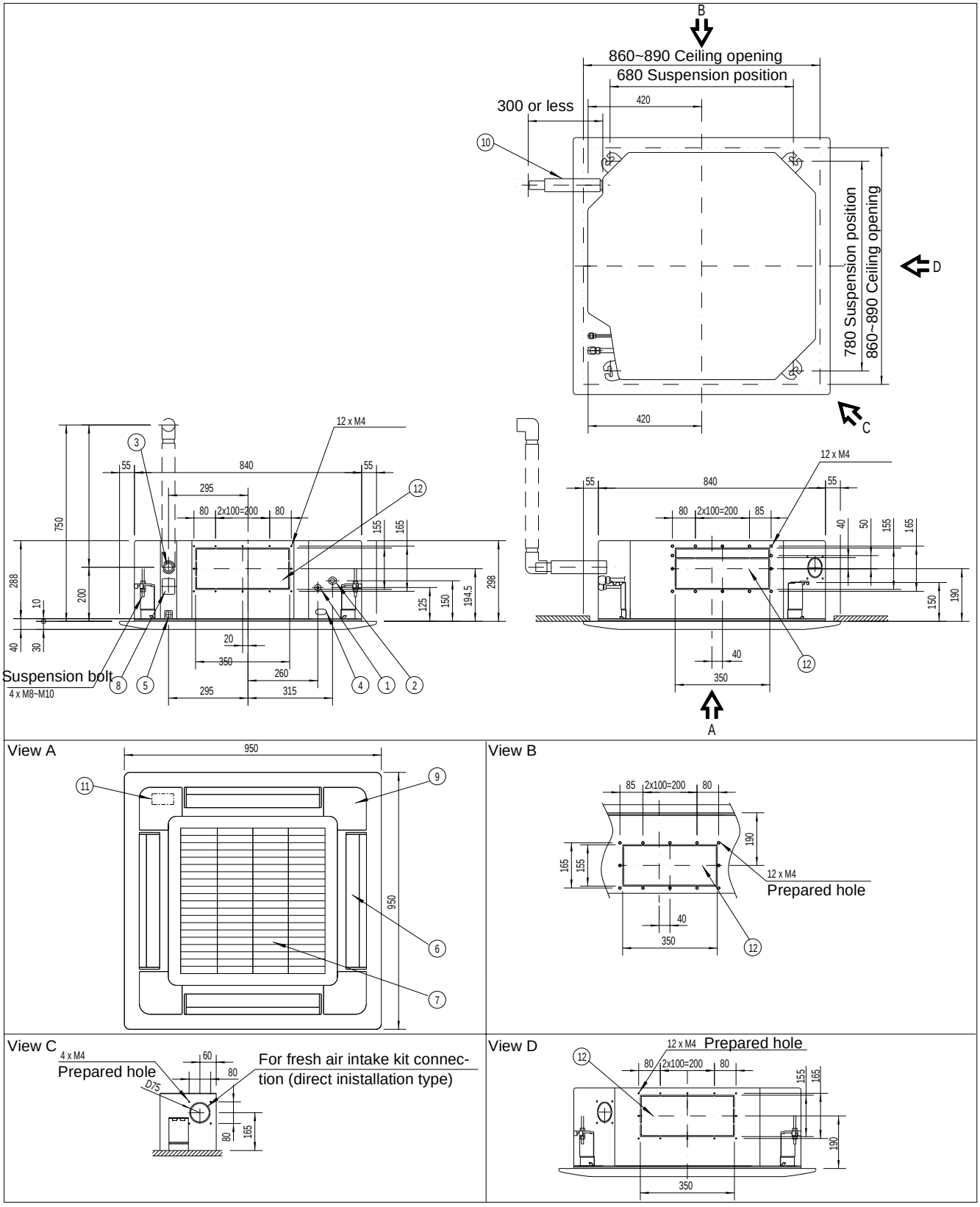
The table below contains the different components of the unit.

No.	Component
1	Liquid pipe connection
2	Gas pipe connection
3	Drain pipe connection (O.D. 32 mm, I.D. 25 mm)
4	Remote controller wiring connection
5	Power supply connection
6	Drain hole (O.D. 32 mm, I.D. 25 mm)
7	Air filter
8	Air suction side
9	Air discharge side
10	Name plate

2.6 FHYCP100B7V1 and FHYCP125B7V1

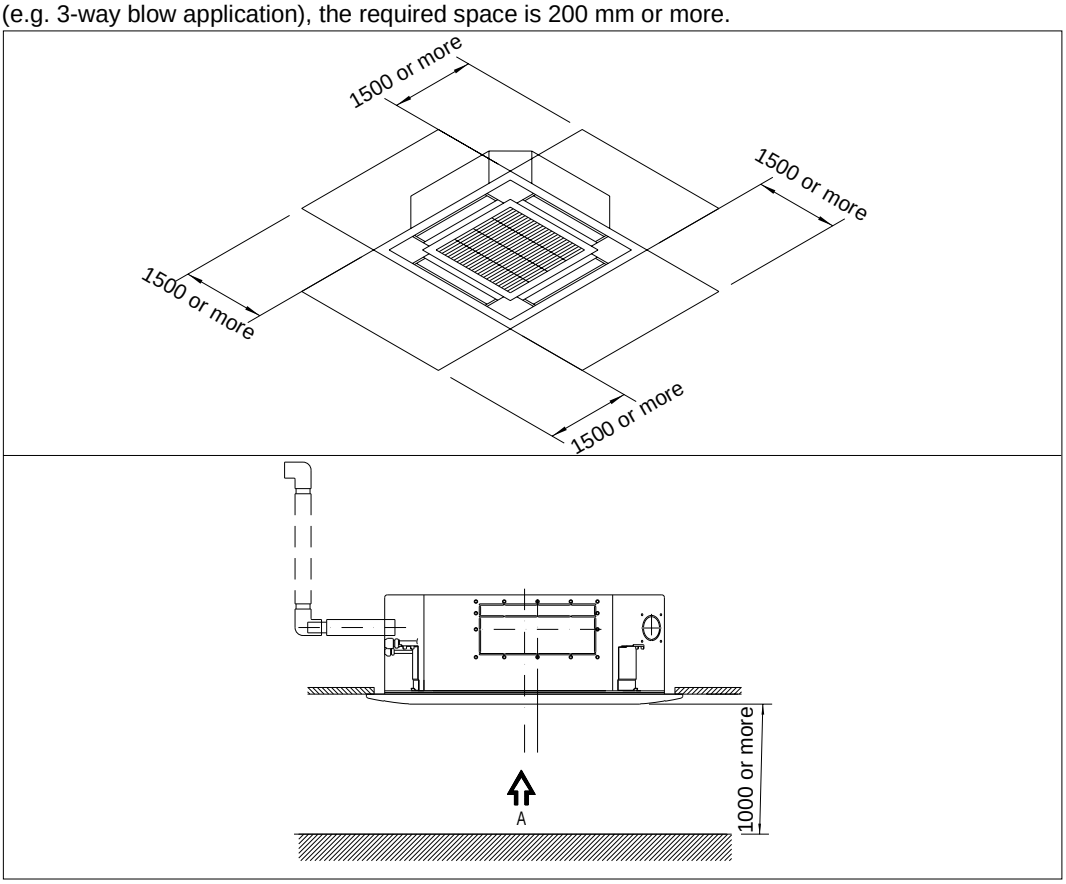
Outlook and dimensions

The illustration below shows the outlook and the dimensions of the unit (mm).



Installation and service space

The illustration below shows the installation and service space (mm). When a discharge grille is closed (e.g. 3-way blow application), the required space is 200 mm or more.



Components

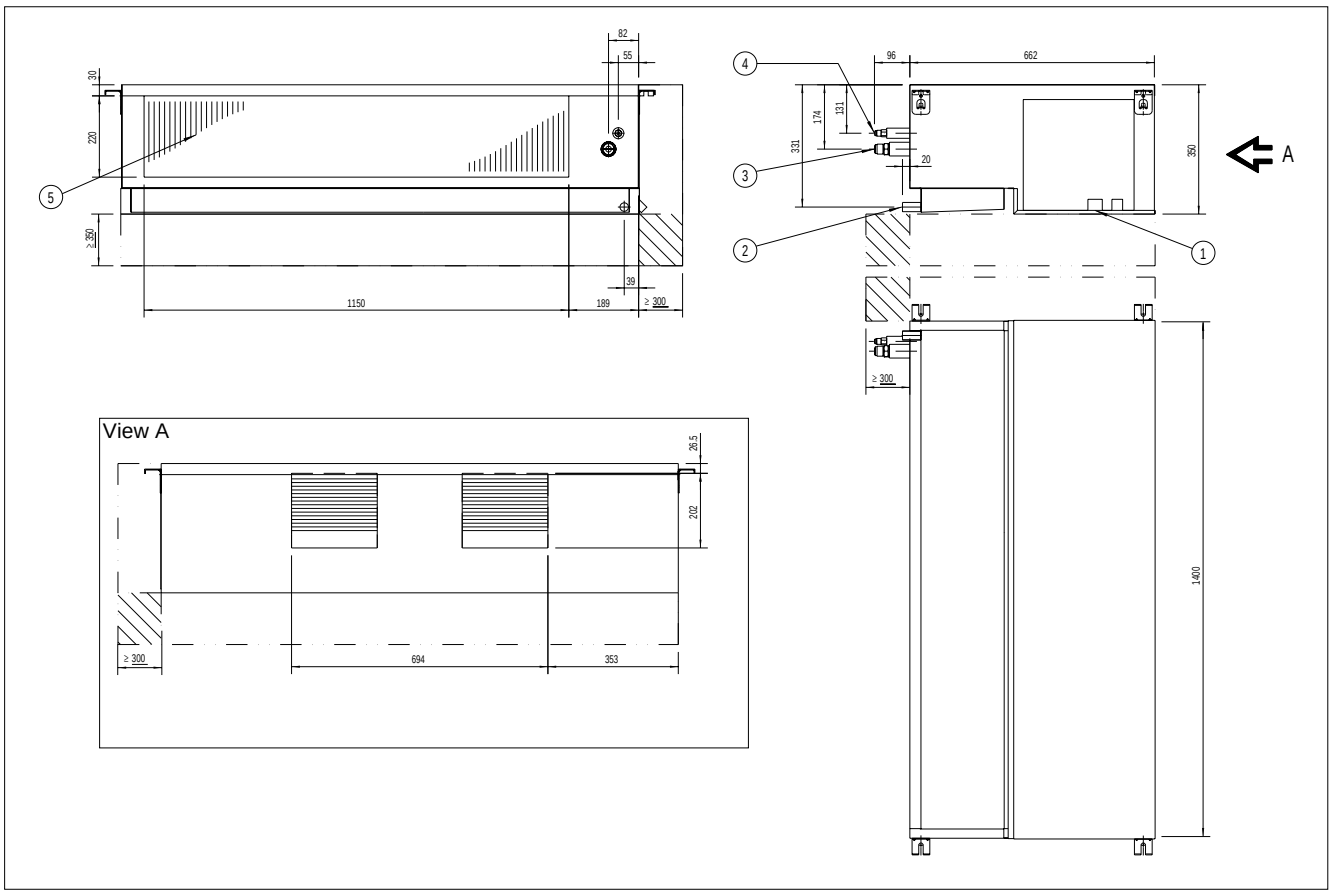
The table below contains the different components of the unit.

No.	Component
1	Liquid pipe connection
2	Gas pipe connection
3	Drain pipe connection (O.D. 32 mm, I.D. 25 mm)
4	Power supply connection
5	Transmission wiring connection
6	Air discharge grille
7	Air suction grille
8	Water supply intake
9	Corner decoration cover
10	Drain hose (O.D. 32 mm)
11	In case a wireless remote controller is used, this position is a signal receiver.
12	Branch duct connection

2.7 FDYP125B7V1

Outlook, dimensions and installation and service space

The illustration below shows the outlook, the dimensions and the installation and service space of the unit (mm).



Service space

Components

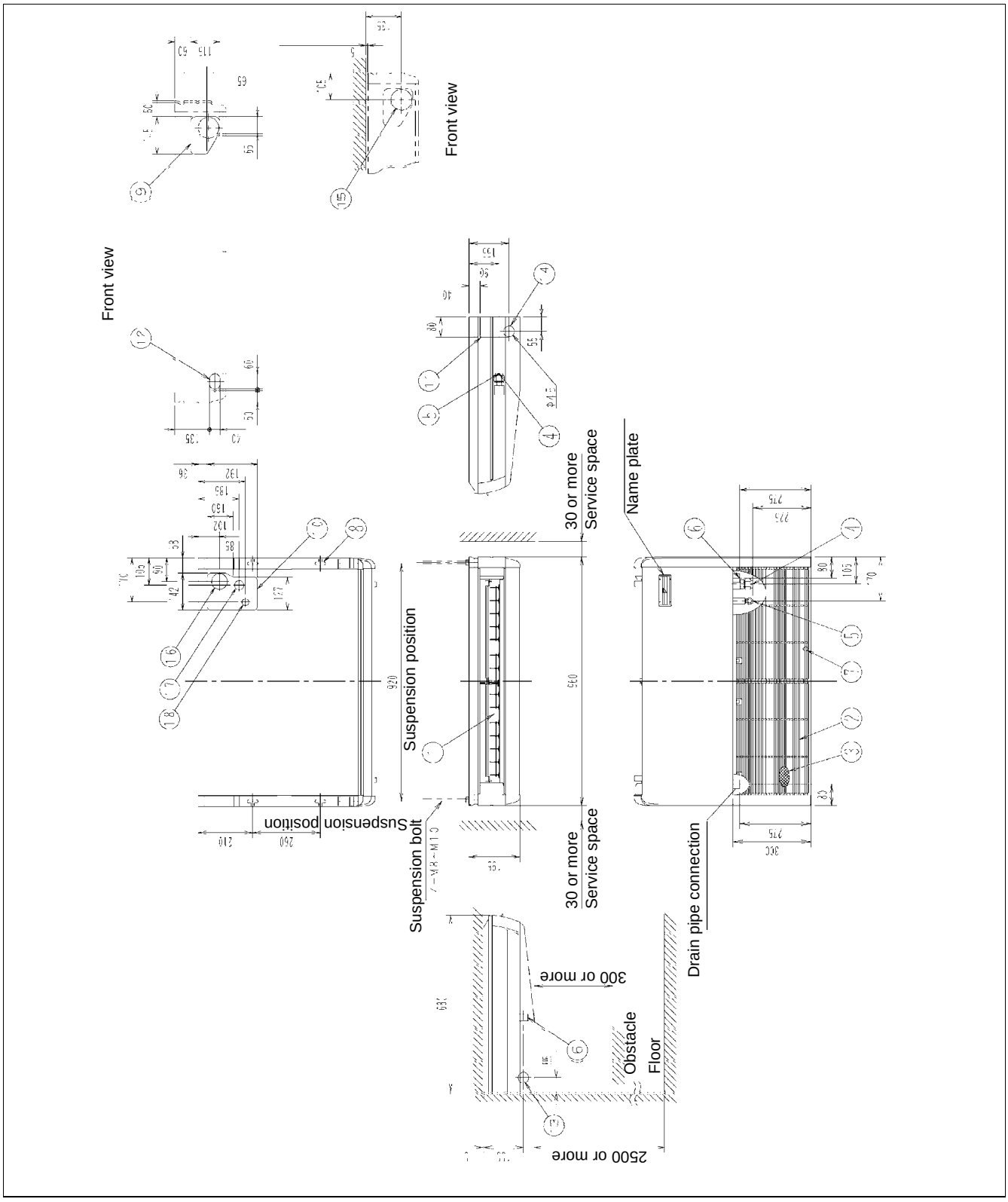
The table below contains the different components of the unit.

No.	Component
1	Power supply intake
2	Drain connection (O.D. 25 mm)
3	Gas pipe connection
4	Liquid pipe connection
5	Filter

2.8 FHYP35BV1 and FHYP45BV1

Outlook and dimensions

The illustration below shows the outlook, the dimensions and the installation and service space of the unit (mm).



Components

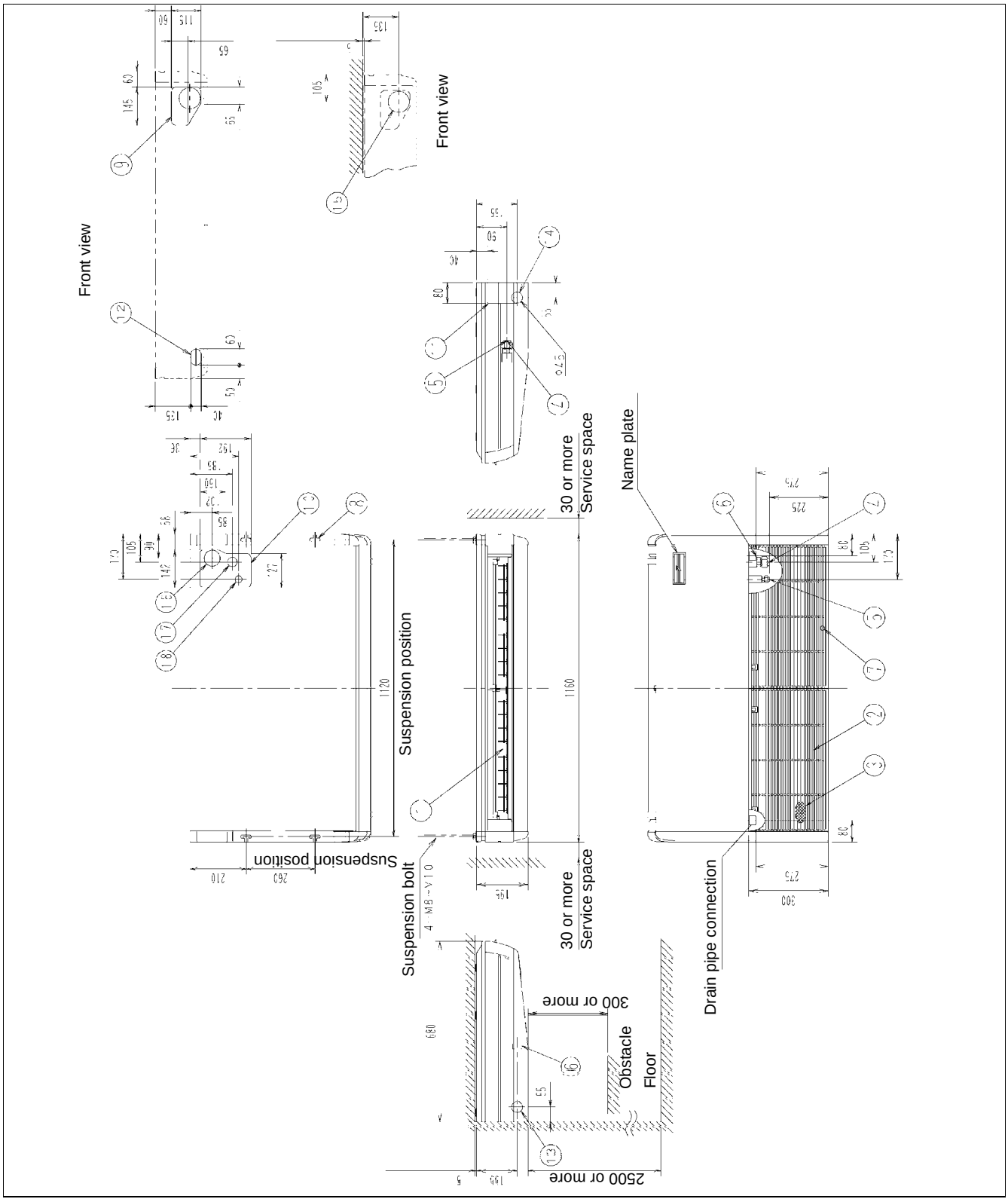
The table below contains the different components of the unit.

No.	Component
1	Air discharge grille
2	Air suction grille
3	Air filter
4	Gas pipe connection
5	Liquid pipe connection
6	Drain pipe connection
7	Grounding terminal (inside the electric components box) M4
8	Suspension bracket
9	Backward piping and wiring connection opening lid
10	Upward piping and wiring connection opening lid
11	Right side pipe connection (slit hole)
12	Left back drain pipe connection (slit hole)
13	Left side drain pipe connection (slit hole)
14	Right side drain pipe connection (slit hole)
15	Wall hole for taking out in piping back (∅ 100 mm)
16	Upward drain pipe connection (∅ 60 mm)
17	Upward gas pipe connection (∅ 36 mm)
18	Upward liquid pipe connection (∅ 26 mm)
—	Name plate: In case of a wireless remote controller, this position is a signal receiver.

2.9 FHYP60BV1 and FHYP71BV1

Outlook and dimensions

The illustration below shows the outlook, the dimensions and the installation and service space of the unit (mm).



Components

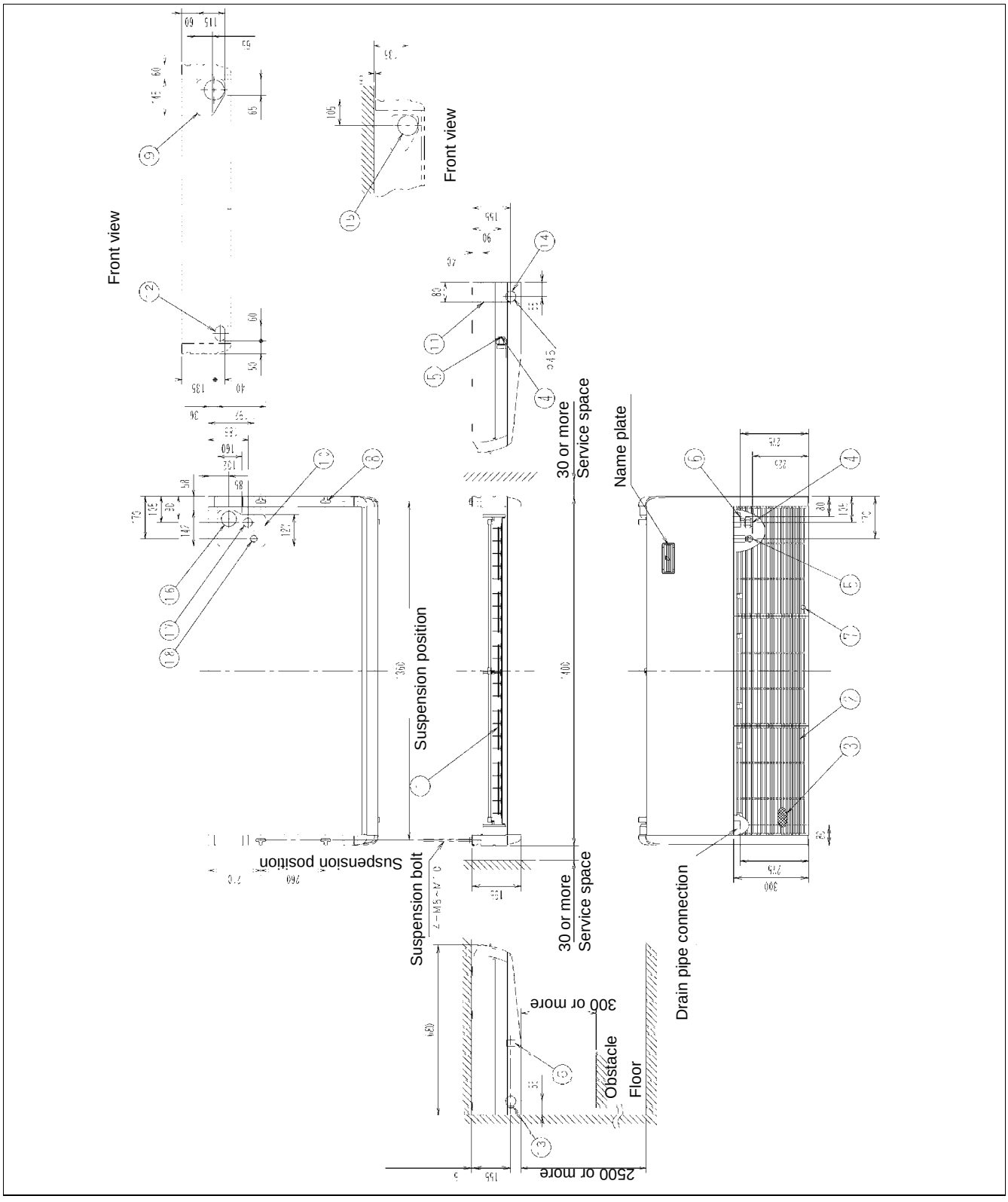
The table below contains the different components of the unit.

No.	Component
1	Air discharge grille
2	Air suction grille
3	Air filter
4	Gas pipe connection
5	Liquid pipe connection
6	Drain pipe connection
7	Grounding terminal (inside the electric components box) M4
8	Suspension bracket
9	Backward piping and wiring connection opening lid
10	Upward piping and wiring connection opening lid
11	Right side pipe connection (slit hole)
12	Left back drain pipe connection (slit hole)
13	Left side drain pipe connection (slit hole)
14	Right side drain pipe connection (slit hole)
15	Wall hole for taking out in piping back (∅ 100 mm)
16	Upward drain pipe connection (∅ 60 mm)
17	Upward gas pipe connection (∅ 36 mm)
18	Upward liquid pipe connection (∅ 26 mm)
—	Name plate: In case of a wireless remote controller, this position is a signal receiver.

2.10 FHYP100BV1

Outlook and dimensions

The illustration below shows the outlook, the dimensions and the installation and service space of the unit (mm).



Components

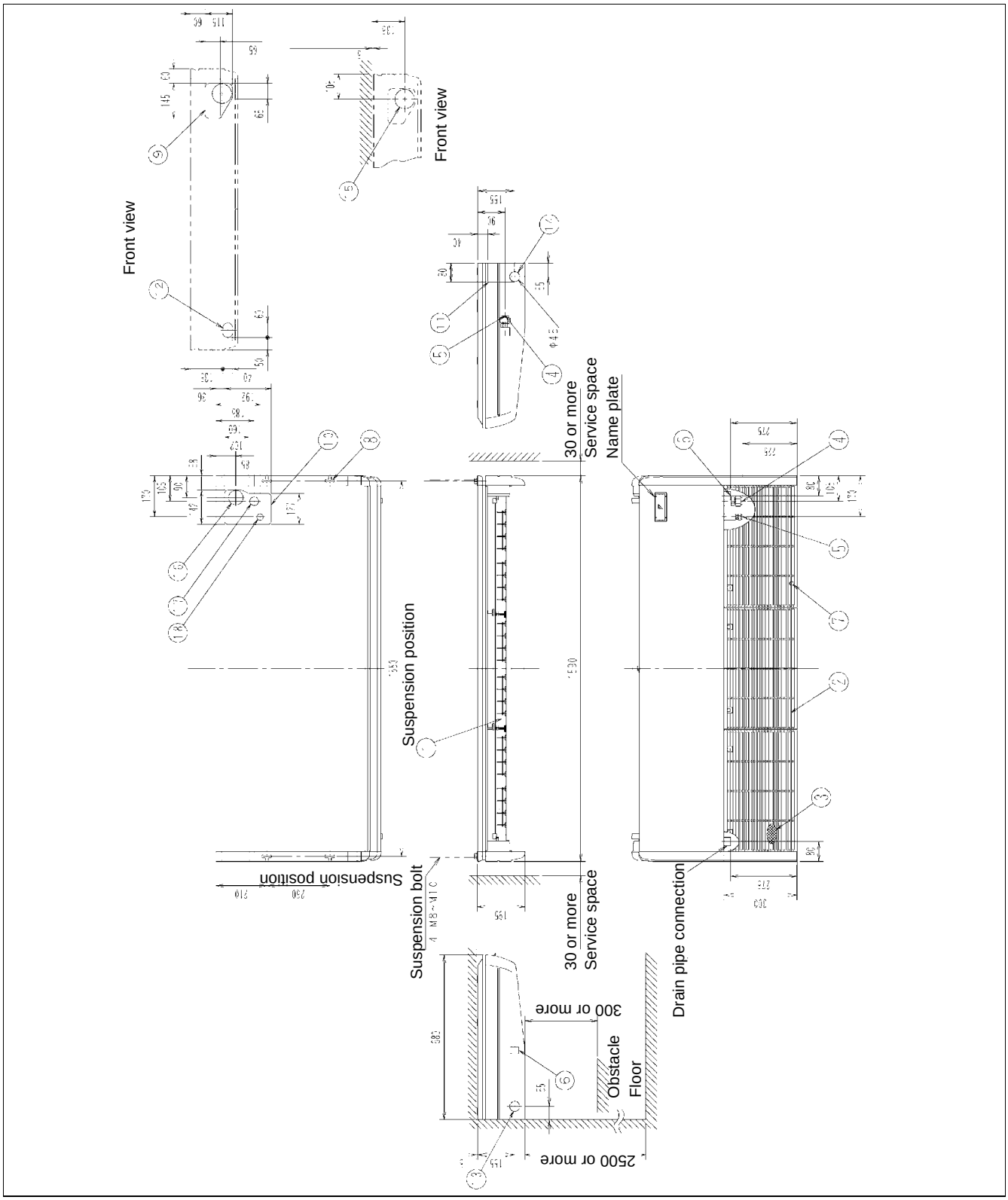
The table below contains the different components of the unit.

No.	Component
1	Air discharge grille
2	Air suction grille
3	Air filter
4	Gas pipe connection
5	Liquid pipe connection
6	Drain pipe connection
7	Grounding terminal (inside the electric components box) M4
8	Suspension bracket
9	Backward piping and wiring connection opening lid
10	Upward piping and wiring connection opening lid
11	Right side pipe connection (slit hole)
12	Left back drain pipe connection (slit hole)
13	Left side drain pipe connection (slit hole)
14	Right side drain pipe connection (slit hole)
15	Wall hole for taking out in piping back (∅ 100 mm)
16	Upward drain pipe connection (∅ 60 mm)
17	Upward gas pipe connection (∅ 36 mm)
18	Upward liquid pipe connection (∅ 26 mm)
—	Name plate: In case of a wireless remote controller, this position is a signal receiver.

2.11 FHYP125BV1

Outlook and dimensions

The illustration below shows the outlook, the dimensions and the installation and service space of the unit (mm).



Components

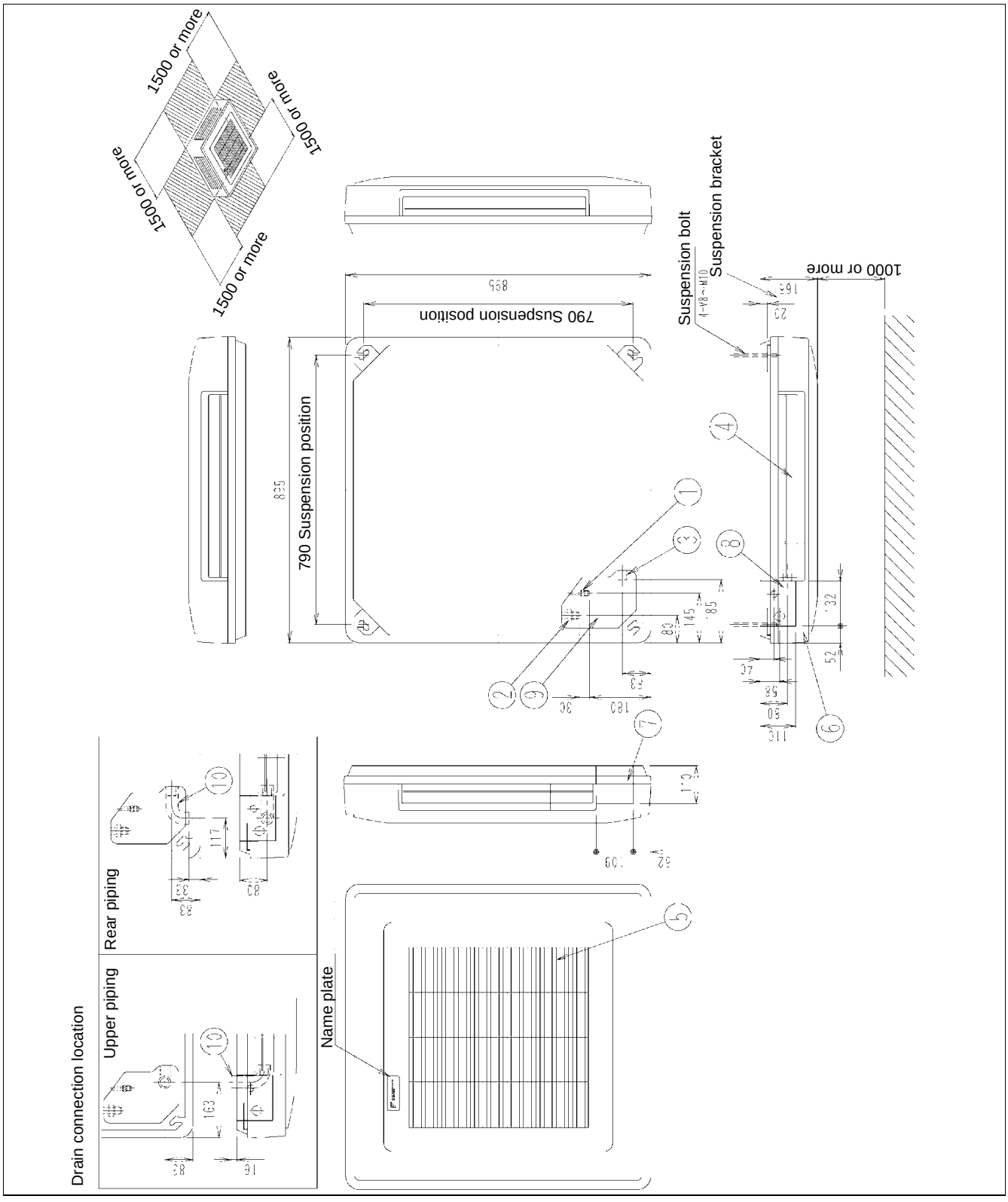
The table below contains the different components of the unit.

No.	Component
1	Air discharge grille
2	Air suction grille
3	Air filter
4	Gas pipe connection
5	Liquid pipe connection
6	Drain pipe connection
7	Grounding terminal (inside the electric components box) M4
8	Suspension bracket
9	Backward piping and wiring connection opening lid
10	Upward piping and wiring connection opening lid
11	Right side pipe connection (slit hole)
12	Left back drain pipe connection (slit hole)
13	Left side drain pipe connection (slit hole)
14	Right side drain pipe connection (slit hole)
15	Wall hole for taking out in piping back (∅ 100 mm)
16	Upward drain pipe connection (∅ 60 mm)
17	Upward gas pipe connection (∅ 36 mm)
18	Upward liquid pipe connection (∅ 26 mm)
—	Name plate: In case of a wireless remote controller, this position is a signal receiver.

2.12 FUYP71BV17

Outlook and dimensions

The illustration below shows the outlook, the dimensions and the installation and service space of the unit (mm).



Components

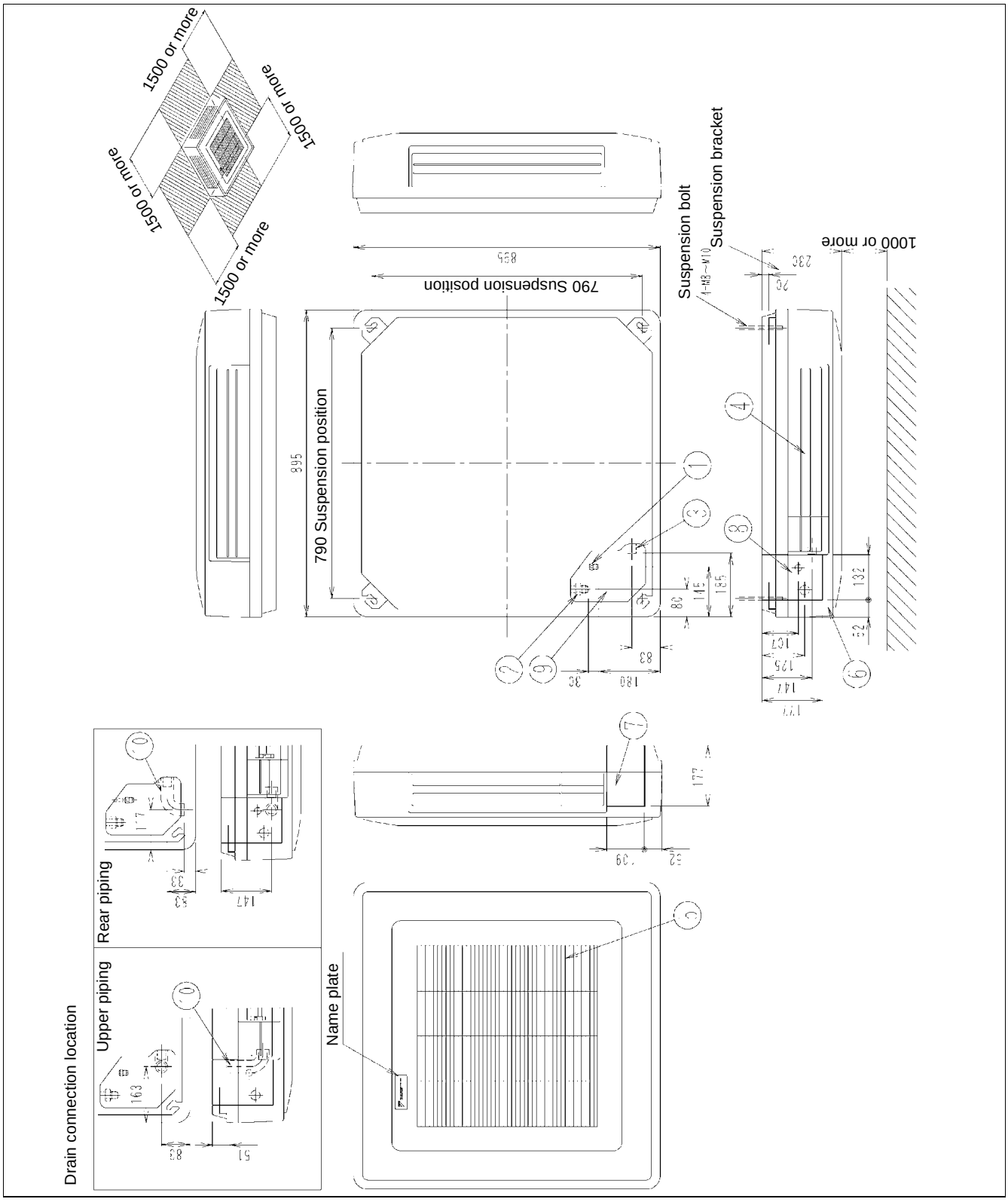
The table below contains the different components of the unit.

No.	Component
1	Liquid pipe connection
2	Gas pipe connection
3	Drain pipe connection
4	Air outlet
5	Air suction grille
6	Corner decoration panel
7	Right pipe / wiring connection
8	Rear pipe / wiring connection
9	Pipe through cover
10	Accessory drain elbow
—	Name plate: In case of a wireless remote controller, this position is a signal receiver.

2.13 FUYP100BV17 and FUYP125BV17

Outlook and dimensions

The illustration below shows the outlook, the dimensions and the installation and service space of the unit (mm).



Components

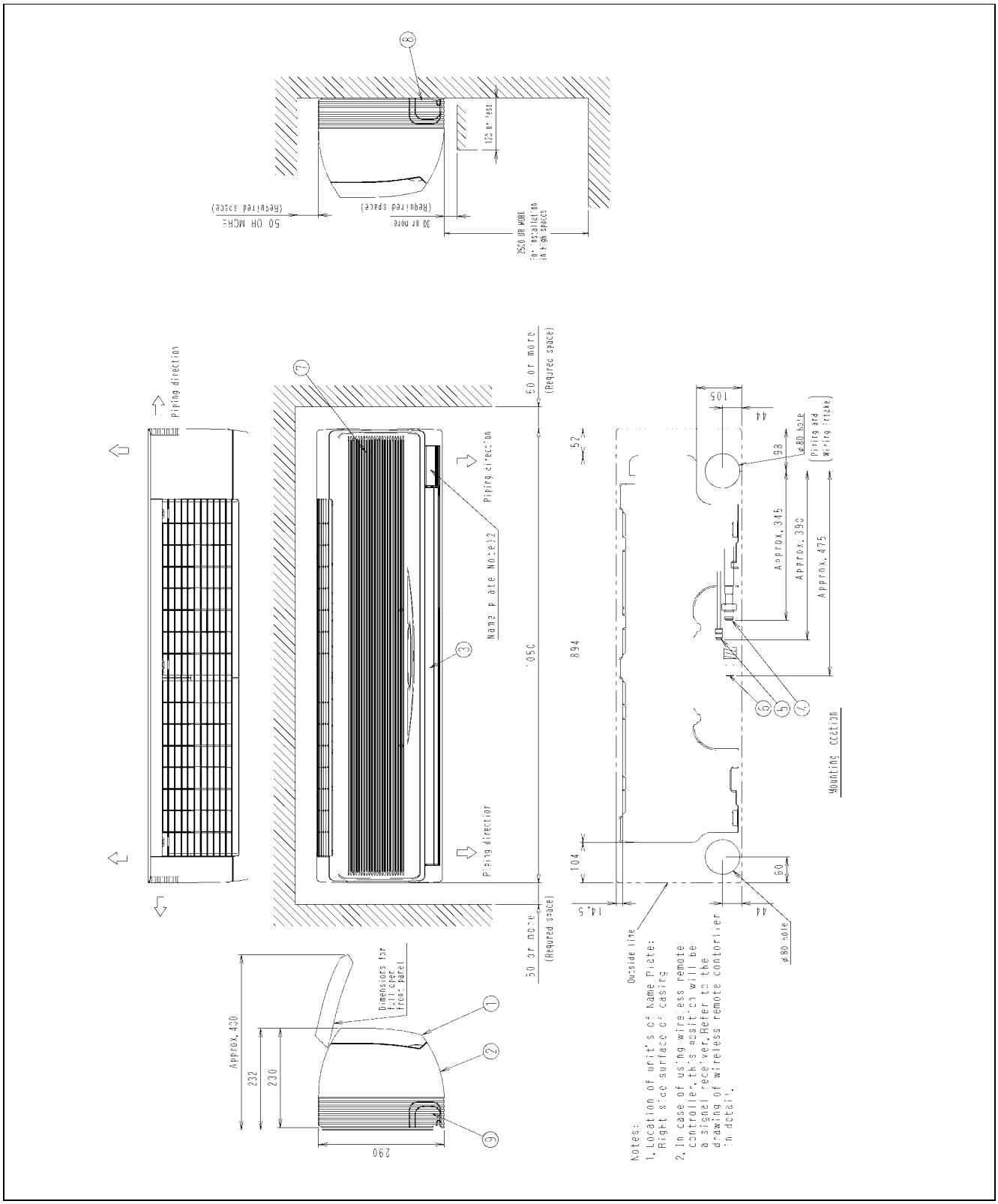
The table below contains the different components of the unit.

No.	Component
1	Liquid pipe connection
2	Gas pipe connection
3	Drain pipe connection
4	Air outlet
5	Air suction grille
6	Corner decoration panel
7	Right pipe / wiring connection
8	Rear pipe / wiring connection
9	Pipe through cover
10	Accessory drain elbow
—	Name plate: In case of a wireless remote controller, this position is a signal receiver.

2.14 FAYP71LV1

Outlook and dimensions

The illustration below shows the outlook, the dimensions and the installation and service space of the unit (mm).Components


Piping direction
Name plate Model
Mounting location
Outside line
Notes:
1. Location of unit's of Name Plate:
Right side surface of casing
2. In case of using wireless remote controller, this position will be a signal receiver. Refer to the drawing of wireless remote controller in detail.

Components

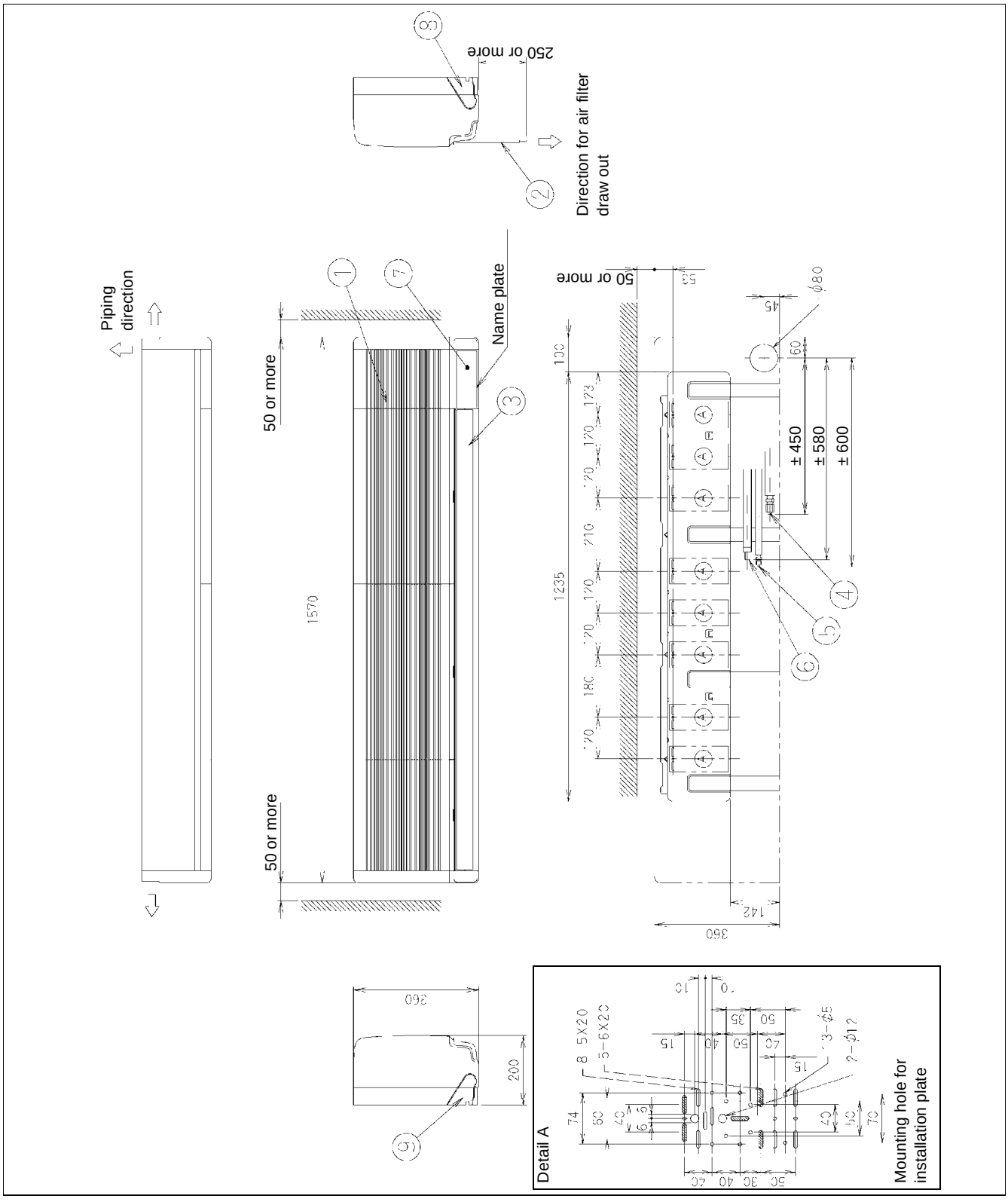
The table below contains the different components of the unitThe table below contains the different components of the unit.

No.	Component
1	Front panel
2	Front grill
3	Air outlet
4	Gas pipe
5	Liquid pipe
6	Drain hose
7	Grounding terminal
8	Right side pipe connection hole
9	Left side pipe connection hole

2.15 FAYP100BV1

Outlook and dimensions

The illustration below shows the outlook, the dimensions and the installation and service space of the unit (mm).



Components

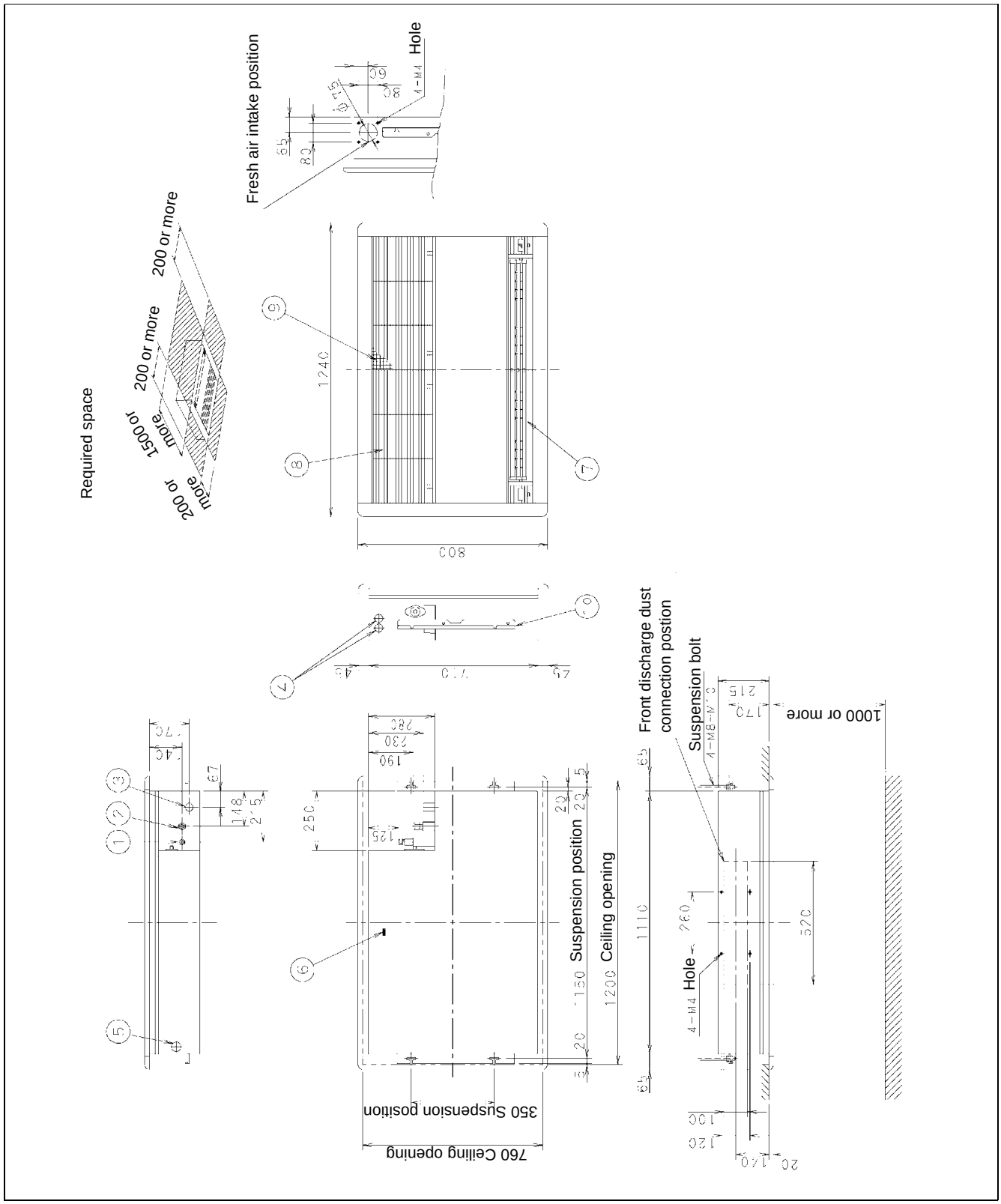
The table below contains the different components of the unit.

No.	Component
1	Front grille
2	Air filter
3	Discharge outlet
4	Gas pipe connection
5	Liquid pipe connection
6	Drain pipe connection (O.D. 26 mm)
7	Grounding terminal M4 (inside the cover)
8	Slit hole for right piping connection
9	Slit hole for left piping connection
—	Name plate: In case of a wireless remote controller, this position is a signal receiver.

2.16 FHYKP35BV17 and FHYKP45BV17

Outlook and dimensions

The illustration below shows the outlook, the dimensions and the installation and service space of the unit (mm).



Components

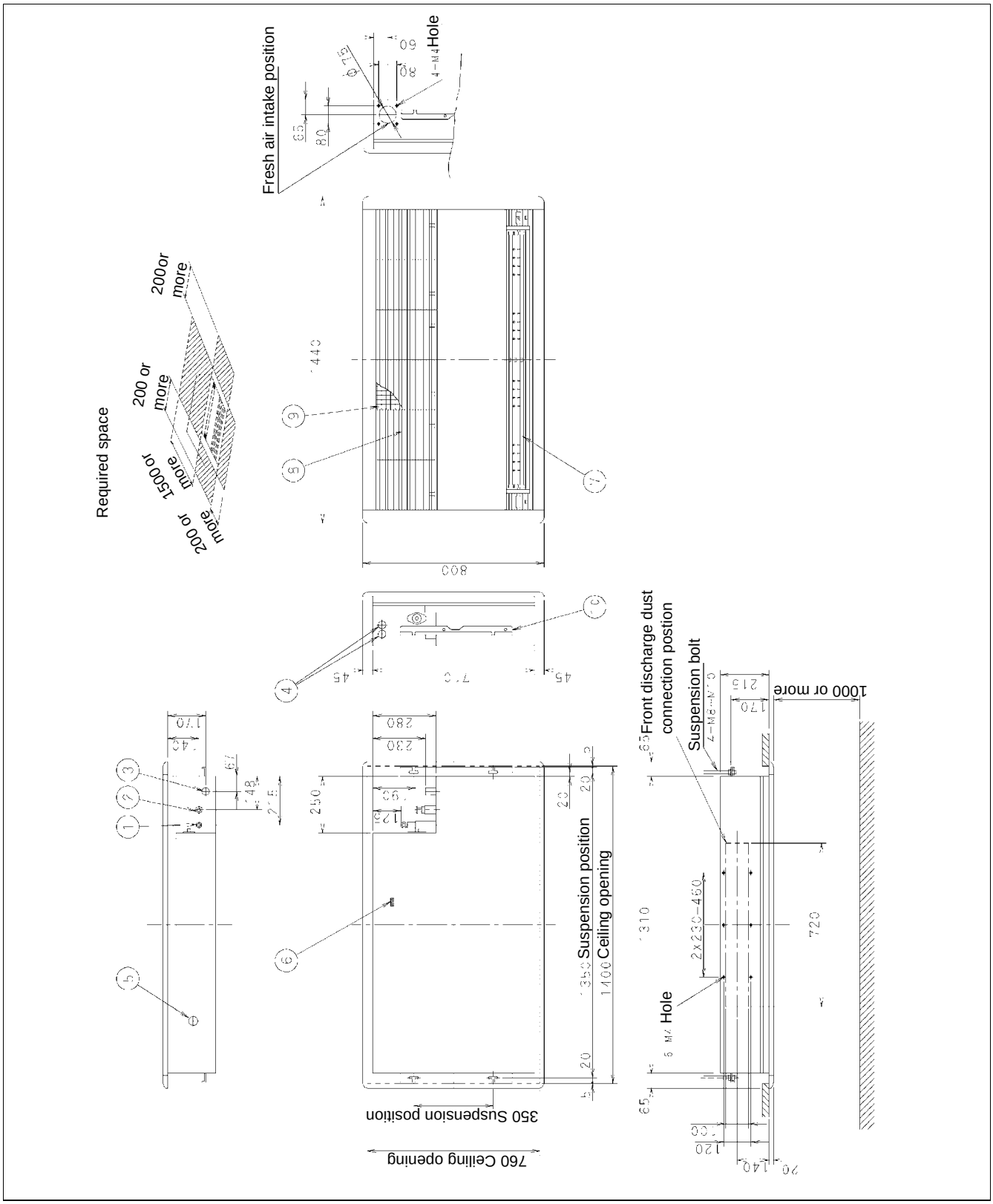
The table below contains the different components of the unit.

No.	Component
1	Liquid pipe connection
2	Gas pipe connection
3	Drain pipe connection
4	Wire intake
5	Wire intake for remote control
6	Grounding terminal M4 (inside the switch box)
7	Air discharge grille
8	Air suction grille
9	Air filter
10	Suspension bracket

2.17 FHYKP60BV17 and FHYKP71BV17

Outlook and dimensions

The illustration below shows the outlook, the dimensions and the installation and service space of the unit (mm).



Components

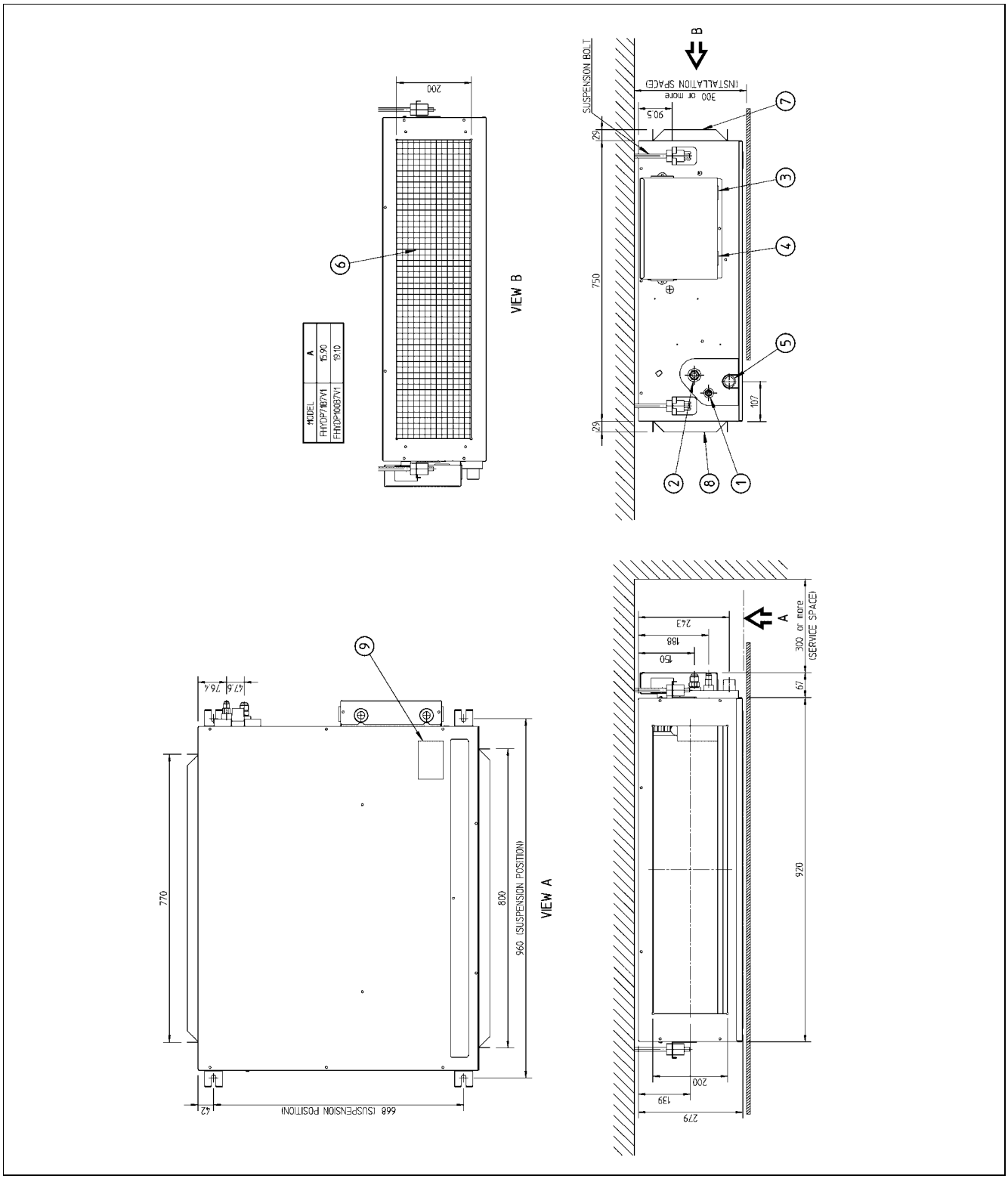
The table below contains the different components of the unit.

No.	Component
1	Liquid pipe connection
2	Gas pipe connection
3	Drain pipe connection
4	Wire intake
5	Wire intake for remote control
6	Grounding terminal M4 (inside the switch box)
7	Air discharge grille
8	Air suction grille
9	Air filter
10	Suspension bracket

2.18 FDYMP71~100L7V1

Outlook and dimensions

The illustration below shows the outlook, the dimensions and the installation and service space of the unit (mm).



Components

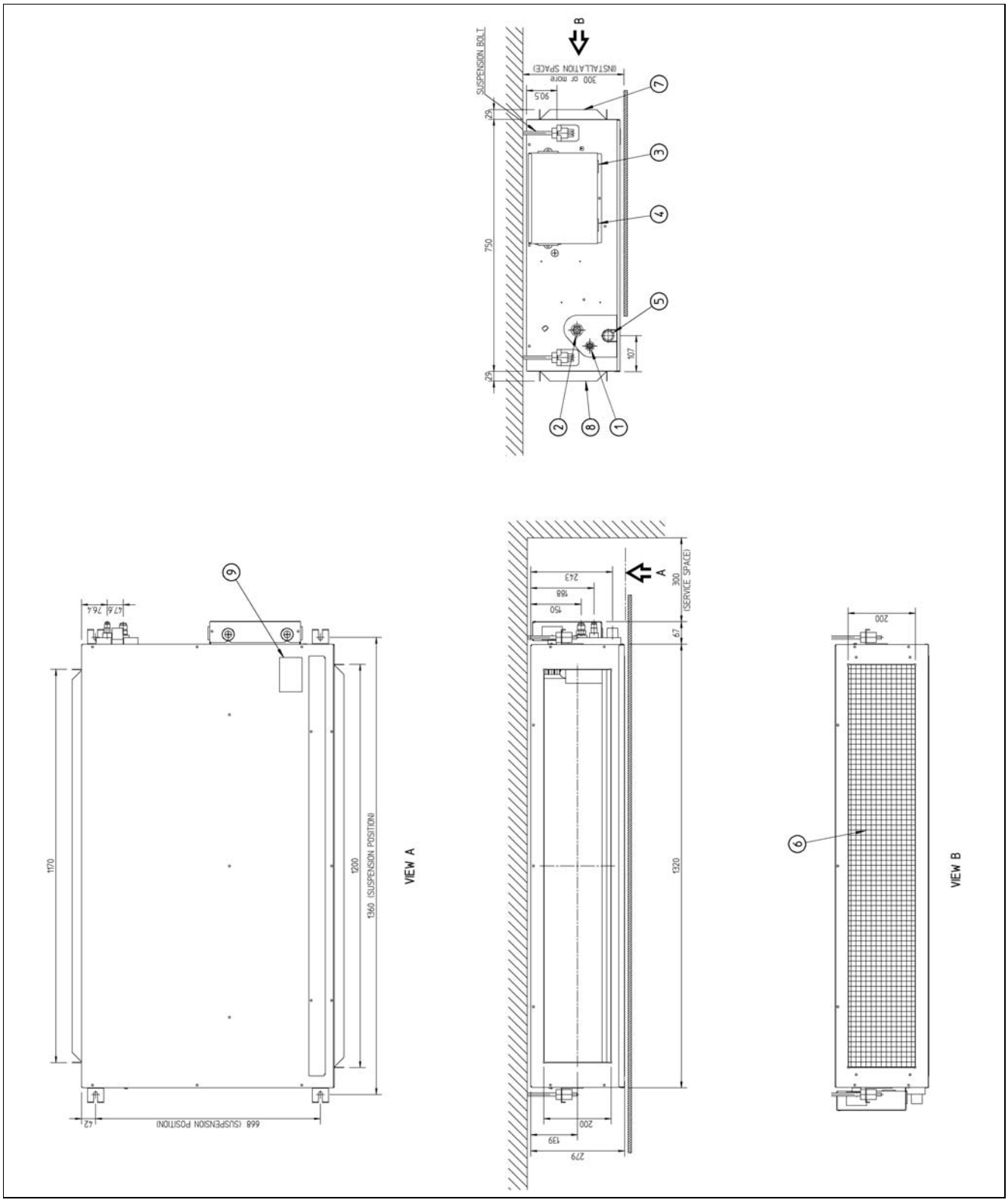
The table below contains the different components of the unit.

No.	Component
1	Liquid pipe connection
2	Gas pipe connection
3	Remote controller wiring connection
4	Power supply connection
5	Drain pipe connection (O.D. 32 mm)
6	Air filter
7	Air suction side
8	Air discharge side
9	Nameplate

2.19 FDYMP125L7V1

Outlook and dimensions

The illustration below shows the outlook, the dimensions and the installation and service space of the unit (mm).



Components

The table below contains the different components of the unit.

No.	Component
1	Liquid pipe connection
2	Gas pipe connection
3	Remote controller wiring connection
4	Power supply connection
5	Drain pipe connection (O.D. 32 mm)
6	Air filter
7	Air suction side
8	Air discharge side
9	Nameplate

3 Specifications

3.1 What Is in This Chapter?

Introduction

This chapter contains the following information:

- ➤ Technical specifications
- ➤ Electrical specifications.

Options

For possible options, refer to OHE03-2 or the installation manual.

Outdoor units

This chapter contains the following specifications:

Specifications	See page
3.2–RP71	1–48
3.3–RP100 and RP125	1–50
3.4–RYP71, RYP100 and RYP125	1–52

Indoor units

This chapter contains the following specifications:

Specifications	See page
3.5–FHYCP	1–55
3.6–FHYBP	1–56
3.7–FDYP	1–57
3.8–FHYP	1–58
3.9–FUYP	1–59
3.10–FAYP and FHYKP	1–60
3.11–FDYMP	1–61

3.2 RP71

Technical specifications

The table below contains the technical specifications.

Specification		RP71L7V1	RP71L7W1
Compressor	Model x No.	JT90FA-V1N x 1	JT90FA-YE x 1
	Type	Hermetically sealed scroll type	
	Refrigerant oil type	DAPHNE FVC68D	
	Speed	rpm	
	Oil charge	1200 cc	
Outdoor Heat exchanger	Length	859 mm	
	Rows x stages x fin pitch	2 x 34 x 2.0 mm	
	No of passes	6	
	Face area	0.634 m²	
	Tube type	HI-XSS Cooling tube	
	Fin type	Non sym. waffle louvre	
	Empty tubeplate hole	0	
	No of fans	1	
Fan	Nominal air flow (230V) cooling	48 m³/min	
	Fan motor model	P47L11S	
	Fan speed	3 steps	
Refrigerant circuit	Type	R407C	
	Charge	2.8 kg	
Safety and functional devices		See page 1–63 and 3–19	
Heat insulation		Both liquid and gas pipes	
Weight		79 kg	78 kg

Electrical specifications

The table below contains the electrical specifications.

Specification		RP71L7V1	RP71L7W1
Unit	Phase	1~	3N~
	Voltage	230 V	400 V
	Frequency	50 Hz	
	No. of wire connections	3 wires for power supply (including earth wire)	5 wires for power supply (including earth wire)
		4 wires for connection with indoor (including earth wire	
	Power supply intake	Outdoor unit only	
Compressor	Phase	1~	3~
	Voltage	230 V	400 V
	Starting method	Direct	
	No. x motor output	1 x 2200 W	
Fan motor	Phase	1~	
	Voltage	230 V	
	No. of motors x output	1 x 65W	

Electrical Data

The table below contains the electrical specifications.

Unit combination		Power supply					Compressor		OFM		IFM	
Indoor unit	Outdoor unit	Hz-Volts	Voltage range	MCA	TOCA	MFA	LRA	RLA	kW	FLA	kW	FLA
FHYCP71	RP71L7V1	50-230	Max.50Hz-264V Min.50Hz-198V	15.1	23.2	32	72	11.1	0.065	0.6	0.045	0.6
FUYP71	RP71L7V1	50-230		15.0	23.2	32	72	11.0	0.065	0.6	0.045	0.6
FHYP71	RP71L7V1	50-230		15.0	23.2	32	72	11.0	0.065	0.6	0.062	0.6
FHYKP71	RP71L7V1	50-230		14.6	23.1	32	72	10.8	0.065	0.6	0.045	0.5
FAYP71	RP71L7V1	50-230		14.5	22.9	32	72	10.9	0.065	0.6	0.046	0.3
FHYBP71	RP71L7V1	50-230		15.1	23.5	32	72	10.9	0.065	0.6	0.125	0.9
FDYMP71	RP71L7V1	50-230		15.1	23.5	32	72	10.9	0.065	0.6	0.125	0.9
FHYCP71	RP71L7W1	50-400/230	Max.50Hz-440/253V Min.50Hz-360/197V	6.6	11.2	16	37	4.3	0.065	0.6	0.045	0.6
FUYP71	RP71L7W1	50-400/230		6.6	11.2	16	37	4.3	0.065	0.6	0.045	0.6
FHYP71	RP71L7W1	50-400/230		6.6	11.2	16	37	4.3	0.065	0.6	0.062	0.6
FHYKP71	RP71L7W1	50-400/230		6.4	11.1	16	37	4.2	0.065	0.6	0.045	0.5
FAYP71	RP71L7W1	50-400/230		6.3	10.9	16	37	4.3	0.065	0.6	0.046	0.3
FHYBP71	RP71L7W1	50-400/230		6.8	11.5	16	37	4.2	0.065	0.6	0.125	0.9
FDYMP71	RP71L7W1	50-400/230		6.8	11.5	16	37	4.2	0.065	0.6	0.125	0.9

Symbols:

MCA: Min. Circuit Amps

TOCA: Total Over-current Amps

MFA: Max. Fuse Amps (see note 7)

LRA : Locked Rotor Amps

RLA : Rated Load Amps

OFM : Outdoor Fan Motor

IFM : Indoor Fan Motor

FLA : Full Load Amps

kW : Fan Motor Rated Output

Notes:

1. RLA is based on the following conditions:
   Indoor temp.: 27°CDB/19.5°CWB
   Outdoor temp. : 35°CDB.
2. TOCA means the total value of each OC set.
3. Voltage range
   Units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed operation range limits.
4. Maximum allowable voltage unbalance between phases is 2%.
5. MCA/MFA
   MCA = 1.25 x RLA + all FLA, MFA = < 2.25 x RLA + all FLA (next lower standard fuse rating Min. 16A).
6. Select wire size based on the larger value of MCA or TOCA.
7. Instead of fuse, use circuit breaker.

3.3 RP100 and RP125

Technical specifications

The table below contains the technical specifications.

Specification		RP100L7V1	Rp100L7W1	Rp125L7W1
Compressor	Model x No.	JT125FA-V1N x1	JT125FA-YE x 1	JT160FA-YE x 1
	Type	Hermetically sealed scroll type		
	Crankcase heater	—		
	Refrigerant oil type	DAPHNE FVC68D		
	Speed	rpm		
	Oil charge	1500 cc		
Outdoor Heat exchanger	Length	859 mm		
	Rows x stages x fin pitch	2 X 52 X 2.0 mm		
	No of passes	10		
	Face area	0.983 m²		
	Tube type	HI-XSS Cooling tube		
	Fin type	Non sym. waffle louvre		
	Empty tubeplate hole	0		
	No of fans	1		2
Fan	Nominal air flow (230V) cooling	55 m³/min		89 m³/min
	Fan motor model	P47L11S		P47L11S x 2
	Fan speed	3 steps		
Refrigerant circuit	Type	R407C		
	Charge	3.7 kg		
Safety and functional devices		See page 1–63 and 3–19		
Heat insulation		Both liquid and gas pipes		
Weight		100 kg	99 kg	104 kg

Electrical specifications

The table below contains the electrical specifications.

Specification		RP100L7V1	Rp100L7W1	Rp125L7W1
Unit	Phase	1~	3N~	
	Voltage	230 V	400 V	
	Frequency	50 Hz		
	No. of wire connections	3 wires for power supply (including earth wire)	5 wires for power supply (including earth wire)	
		4 wires for connection with indoor (including earth wire)		
	Nominal running current (cooling)	See electrical data		
	Max. running current	See electrical data		
	Power supply intake	Outdoor unit only		
Compressor	Phase	1~	3~	
	Voltage	230 V	400 V	
	Starting method	Direct		
	No. x motor output	1 x 3000 W		1 x 3750 W
Fan motor	Phase	1~		
	Voltage	230 V		
	No. of motors x output	90 W		85 +65 W

Electrical Data

The table below contains the electrical specifications.

Unit combination		Power supply					Compressor		OFM		IFM	
Indoor unit	Outdoor unit	Hz-Volts	Voltage range	MCA	TOCA	MFA	LRA	RLA	kW	FLA	kW	FLA
FHYCP100	RP100L7V1	50-230	Max.50Hz-264V Min.50Hz-198V	22.7	34.8	40	97	16.7	0.090	0.8	0.090	1.0
FUYP100	RP100L7V1	50-230		22.4	34.8	40	97	16.5	0.090	0.8	0.090	1.0
FHYP100	RP100L7V1	50-230		22.5	34.5	40	97	16.8	0.090	0.8	0.130	0.7
FAYP100	RP100L7V1	50-230		21.7	34.2	40	97	16.4	0.090	0.8	0.049	0.4
FHYBP100	RP100L7V1	50-230		22.6	34.8	40	97	16.6	0.090	0.8	0.135	1.0
FDYMP100	RP100L7V1	50-230		22.4	34.8	40	97	16.5	0.090	0.8	0.135	1.0
FHYCP100	RP100L7W1	50-400/230	Max.50Hz-440/253V Min.50Hz-360/197V	9.2	11.8	16	47	5.9	0.090	0.8	0.090	1.0
FUYP100	RP100L7W1	50-400/230		9.4	11.8	16	47	6.1	0.090	0.8	0.090	1.0
FHYP100	RP100L7W1	50-400/230		9.3	11.5	16	47	6.2	0.090	0.8	0.130	0.7
FAYP100	RP100L7W1	50-400/230		8.7	11.2	16	47	6.0	0.090	0.8	0.049	0.4
FHYBP100	RP100L7W1	50-400/230		9.3	11.8	16	47	6.0	0.090	0.8	0.135	1.0
FDYMP100	RP100L7W1	50-400/230		9.4	11.8	16	47	6.1	0.090	0.8	0.135	1.0

Unit combination		Power supply					Compressor		OFM		IFM	
Indoor unit	Outdoor unit	Hz-Volts	Voltage range	MCA	TOCA	MFA	LRA	RLA	kW	FLA	kW	FLA
FHYCP125	RP125L7W1	50-400/230	Max.50Hz-440/253V Min.50Hz-360/197V	11.6	15.3	20	59	7.4	0.065+ 0.085	0.6+ 07	0.09	1.0
FUYP125	RP125L7W1	50-400/230		11.6	15.3	20	59	7.4	0.065+ 0.085	0.6+ 0.7	0.09	1.0
FHYP125	RP125L7W1	50-400/230		11.4	15.0	20	59	7.5	0.065+ 0.085	0.6+ 0.7	0.13	0.7
FHYBP125	RP125L7W1	50-400/230		12.1	15.7	20	59	7.5	0.065+ 0.085	0.6+ 0.7	0.225	1.4
FDYMP125	RP125L7W1	50-400/230		12.1	15.7	20	59	7.5	0.065+ 0.085	0.6+ 0.7	0.225	1.4
FDYP125	RP125L7W1	50-400/230		14.9	18.5	20	59	7.5	0.065+ 0.085	0.6+ 0.7	0.5	4.2

Symbols:

MCA: Min. Circuit Amps

TOCA: Total Over-current Amps

MFA: Max. Fuse Amps (see note 7)

LRA : Locked Rotor Amps

RLA : Rated Load Amps

OFM : Outdoor Fan Motor

IFM : Indoor Fan Motor

FLA : Full Load Amps

kW : Fan Motor Rated Output

Notes:

1. RLA is based on the following conditions:
   Indoor temp.: 27°CDB/19.5°CWB
   Outdoor temp. : 35°CDB.
2. TOCA means the total value of each OC set.
3. Voltage range
   Units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed operation range limits.
4. Maximum allowable voltage unbalance between phases is 2%.
5. MCA/MFA
   MCA = 1.25 x RLA + all FLA, MFA = < 2.25 x RLA + all FLA
   (next lower standard fuse rating Min. 16A).
6. Select wire size based on the larger value of MCA or TOCA.
7. Instead of fuse, use circuit breaker.

3.4 RYP71, RYP100 and RYP125

Technical specifications

The table below contains the technical specifications.

Specification		RYP71L7V1	RYP71L7W1	RYP100L7V1	RYP100L7W1	RYP125L7W1
Compressor	Model x No.	JT90FA-V1N x 1	JT90FA-YE x 1	JT125FA-V1N x 1	JT125FA-YE x 1	JT160FA-YE x 1
	Type	Hermetically sealed scroll type				
	Crankcase heater	—				
	Refrigerant oil type	DAPHNE FVC68D				
	No. x motor output	1 x 2200 W		1 x 3000 W		1 x 3750 W
	Speed	—				
	Oil charge	1200 cc		1500 cc		
Outdoor Heat exchanger	Length	859 mm				
	Rows x stages x fin pitch	2 x 34 x 2.0 mm		2 x 52 x 2.0 mm		
	No of passes	6		10		
	Face area	0.364 m²		0.983 m²		
	Tube type	HI-XSS Cooling tube				
	Fin type	Non sym. waffle louvre				
	Empty tubeplate hole	0				
	No. of fans	1				2
Fan	Nominal air flow (230 V) cooling	48 m³/min		55 m³/min		89 m³/min
	Nominal air flow (230 V) Heating	43 m³/min		50 m³/min		80 m³/min
	Fan motor model	P47L11S				P47L11S x 2
	Fan speed	3 steps				
Refrigerant circuit	Type	R407C				
	Charge	2.8 kg		3.7 kg		
Safety and functional devices		See page 1–63 and 3–19				
Heat insulation		Both liquid and gas pipes				
Weight		80 kg	79 kg	102 kg	101 kg	106 kg

Electrical specifications

The table below contains the electrical specifications.

Specification		RYP71L7V1	RYP71L7W1	RYP100L7V1	RYP100L7W1	RYP125L7W1
Unit	Phase	1~	3N~	1~	3N~	3N~
	Voltage	230 V	400 V	230 V	400 V	400 V
	Frequency	50 Hz				
	No. of wire connections	3 wires for power supply (including earth wire) 4 wires for connection with indoor (including earth wire)	5 wires for power supply (including earth wire) 4 wires for connection with indoor (including earth wire)	3 wires for power supply (including earth wire) 4 wires for connection with indoor (including earth wire)	5 wires for power supply (including earth wire) 4 wires for connection with indoor (including earth wire)	5 wires for power supply (including earth wire) 4 wires for connection with indoor (including earth wire)
	Power supply intake	Outdoor unit only				
Compressor	Phase	1~	3~	1~	3~	
	Voltage	230 V	400 V	230 V	400 V	
	Starting method	Direct				
	No. x motor output	1 x 2200 W		1 x 3000 W		1 x 3750 W
Fan motor	Phase	1~				
	Voltage	230 V				
	No. of motors x output	1 x 65 W		90 W		85 + 65 W

Electrical Data

The table below contains the electrical specifications.

Unit combination		Power supply					Compressor		OFM		IFM	
Indoor unit	Outdoor unit	Hz-Volts	Voltage range	MCA	TOCA	MFA	LRA	RLA	kW	FLA	kW	FLA
FHYCP71	RYP71L7V1	50-230	Max.50Hz-264V Min.50Hz-198V	15.1	23.2	32	72	11.1	0.065	0.6	0.045	0.6
FUYP71	RYP71L7V1	50-230		14.7	23.2	32	72	10.8	0.065	0.6	0.045	0.6
FHYP71	RYP71L7V1	50-230		15.6	23.2	32	72	11.5	0.065	0.6	0.062	0.6
FHYKP71	RYP71L7V1	50-230		14.4	23.1	32	72	10.6	0.065	0.6	0.045	0.5
FAYP71	RYP71L7V1	50-230		14.3	22.9	32	72	10.7	0.065	0.6	0.046	0.3
FHYBP71	RYP71L7V1	50-230		14.8	23.5	32	72	10.6	0.065	0.6	0.125	0.9
FDYMP71	RYP71L7V1	50-230		14.8	23.5	32	72	10.6	0.065	0.6	0.125	0.9
FHYCP71	RYP71L7W1	50-400/230	Max.50Hz-440/253V Min.50Hz-360/197V	6.6	11.2	16	37	4.3	0.065	0.6	0.045	0.6
FUYP71	RYP71L7W1	50-400/230		6.5	11.2	16	37	4.2	0.065	0.6	0.045	0.6
FHYP71	RYP71L7W1	50-400/230		6.7	11.2	16	37	4.4	0.065	0.6	0.062	0.6
FHYKP71	RYP71L7W1	50-400/230		6.4	11.1	16	37	4.2	0.065	0.6	0.045	0.5
FAYP71	RYP71L7W1	50-400/230		6.2	10.9	16	37	4.2	0.065	0.6	0.046	0.3
FHYBP71	RYP71L7W1	50-400/230		6.8	11.5	16	37	4.2	0.065	0.6	0.125	0.9
FDYMP71	RYP71L7W1	50-400/230		6.8	11.5	16	37	4.2	0.065	0.6	0.125	0.9

Unit combination		Power supply					Compressor		OFM		IFM	
Indoor unit	Outdoor unit	Hz-Volts	Voltage range	MCA	TOCA	MFA	LRA	RLA	kW	FLA	kW	FLA
FHYCP100	RYP100L7V1	50-230	Max.50Hz-264V Min.50Hz-198V	22.7	34.8	40	97	16.7	0.090	0.8	0.090	1.0
FUYP100	RYP100L7V1	50-230		22.3	34.8	40	97	16.4	0.090	0.8	0.090	1.0
FHYP100	RYP100L7V1	50-230		22.5	34.5	40	97	16.8	0.090	0.8	0.130	0.7
FAYP100	RYP100L7V1	50-230		22.1	34.2	40	97	16.7	0.090	0.8	0.049	0.4
FHYBP100	RYP100L7V1	50-230		22.3	34.8	40	97	16.4	0.090	0.8	0.135	1.0
FDYMP100	RYP100L7V1	50-230		22.4	34.8	40	97	16.5	0.090	0.8	0.135	1.0
FHYCP100	RYP100L7W1	50-400/230	Max.50Hz-440/253V Min.50Hz-360/197V	9.3	11.8	16	47	6.0	0.090	0.8	0.090	1.0
FUYP100	RYP100L7W1	50-400/230		9.3	11.8	16	47	6.0	0.090	0.8	0.090	1.0
FHYP100	RYP100L7W1	50-400/230		9.3	11.5	16	47	6.2	0.090	0.8	0.130	0.7
FAYP100	RYP100L7W1	50-400/230		8.8	11.2	16	47	6.1	0.090	0.8	0.049	0.4
FHYBP100	RYP100L7W1	50-400/230		9.3	11.8	16	47	6.0	0.090	0.8	0.135	1.0
FDYMP100	RYP100L7W1	50-400/230		9.4	11.8	16	47	6.1	0.090	0.8	0.135	1.0

Unit combination		Power supply					Compressor		OFM		IFM	
Indoor unit	**Outdoor unit**	**Hz-Volts**	**Voltage range**	**MCA**	**TOCA**	**MFA**	**LRA**	**RLA**	**kW**	**FLA**	**kW**	**FLA**
FHYCP125	RY(E)P125L7W1	50-400/230	Max.50Hz-440/253V Min.50Hz-360/197V	12.2	15.3	20	59	7.9	0.065+0.085	0.6+07	0.09	1.0
FUYP125	RY(E)P125L7W1	50-400/230		11.4	15.3	20	59	7.3	0.065+0.085	0.6+0.7	0.09	1.0
FHYP125	RY(E)P125L7W1	50-400/230		12.1	15.0	20	59	8.1	0.065+0.085	0.6+0.7	0.13	0.7
FHYBP125	RY(E)P125L7W1	50-400/230		12.0	15.7	20	59	7.4	0.065+0.085	0.6+0.7	0.225	1.4
FDYMP125	RY(E)P125L7W1	50-400/230		12.0	15.7	20	59	7.4	0.065+0.085	0.6+0.7	0.225	1.4
FDYP125	RY(E)P125L7W1	50-400/230		14.8	18.5	20	59	7.4	0.065+0.085	0.6+0.7	0.5	4.2

Symbols:

MCA: Min. Circuit Amps

TOCA: Total Over-current Amps

MFA: Max. Fuse Amps (see note 7)

LRA : Locked Rotor Amps

RLA : Rated Load Amps

OFM : Outdoor Fan Motor

IFM : Indoor Fan Motor

FLA : Full Load Amps

kW : Fan Motor Rated Output

Notes:

1. RLA is based on the following conditions:
   Indoor temp.: 27°CDB/19.5°CWB
   Outdoor temp. : 35°CDB.
2. TOCA means the total value of each OC set.
3. Voltage range
   Units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed operation range limits.
4. Maximum allowable voltage unbalance between phases is 2%.
5. MCA/MFA
   MCA = 1.25 x RLA + all FLA, MFA = < 2.25 x RLA + all FLA (next lower standard fuse rating Min. 16A).
6. Select wire size based on the larger value of MCA or TOCA.
7. Instead of fuse, use circuit breaker.

3.5 FHYCP

Technical specifications

The table below contains the technical specifications.

Specification		FHYCP35B7V1	FHYCP45B7V1	FHYCP60B7V1	FHYCP71B7V1	FHYCP100B7V1	FHYCP125B7V1
Heat exchanger	Rows x stages x fin pitch	2 x 8 x 1.5 mm				2 x 12 x 1.5 mm	
	Face area	0.331 m²				0.497 m²	
	Tube type	Hi-XA					
	Fin type	Cross fin coil					
Fan	Nominal air flow (cooling)	H: 14 m³/min L: 10 m³/min	H: 15 m³/min L: 11 m³/min	H: 18 m³/min L: 14 m³/min		H: 28 m³/min L: 21 m³/min	H: 31 m³/min L: 24 m³/min
	Nominal air flow (heating)	H: 14 m³/min L: 10 m³/min	H: 15 m³/min L: 11 m³/min	H: 18 m³/min L: 14 m³/min		H: 28 m³/min L: 21 m³/min	H: 31 m³/min L: 24 m³/min
	Fan motor model	QTS46B14M				QTS46A17M	
	Fan speed	2 steps					
	Fan type	Turbo fan					
	Drive	Direct drive					
Refrigerant circuit	Type	R407C					
Safety and functional devices		See page 1–63 and 3–18					
Air filter	Filter class	Resin net (mold resistant)					
	Max. temperature						
	Cleaning						
Temperature control		Computerized control					
Insulation	Heat	Foamed polystyrene					
	Sound absorbing						
Weight		Unit: 23 kg Decoration panel: 5 kg				Unit: 27 kg Decoration panel: 5 kg	

Electrical specifications

The table below contains the electrical specifications.

Specification		FHYCP35B7V1	FHYCP45B7V1	FHYCP60B7V1	FHYCP71B7V1	FHYCP100B7V1	FHYCP125B7V1
Unit	Phase	1~					
	Voltage	230 V					
	Frequency	50 Hz					
Fan motor	FLA (Full Load Amps)	0.6 A				1.0 A	
	Power consumption	140 W		161 W		204 W	238 W
	No. of motors x output	1 x 45 W				1 x 90 W	

3.6 FHYBP

Technical specifications

The table below contains the technical specifications.

Specification		FHYBP35B7V1	FHYBP45B7V1	FHYBP60B7V1	FHYBP71B7V1	FHYBP100B7V1	FHYBP125B7V1
Heat exchanger	Length	450 mm		750 mm		1150 mm	
	Rows x stages x fin pitch	3 x 14 x 1.75 mm					
	No. of passes	4	6	7		10	13
	Face area	0.132 m²		0.221 m²		0.338 m²	
	Tube type	Hi-XA					
	Fin type	Fin Rhombus type					
	Empty tube hole	4	0			14	0
	No. of fans	1		2		3	
Fan	Nominal air flow (cooling)	H: 11.5 m³/min L: 9 m³/min	H: 14 m³/min L: 10 m³/min	H: 19 m³/min L: 14 m³/min		H: 27 m³/min L: 20 m³/min	H: 35 m³/min L: 24 m³/min
	Nominal air flow (heating)	H: 11.5 m³/min L: 9 m³/min	H: 14 m³/min L: 10 m³/min	H: 19 m³/min L: 14 m³/min		H: 27 m³/min L: 20 m³/min	H: 35 m³/min L: 24 m³/min
	Fan speed	2 steps					
	Fan type	Sirocco fan					
	Drive	Direct drive					
	Static external pressure (50/60 Hz)	—		H: 88 M: 49 L: 20		H: 88 M: 49	
Refrigerant circuit	Type	R407C					
Safety and functional devices		See page 1–63 and 3–18					
Insulation	Heat	Both liquid and gas pipes					
	Sound absorbing	Flame and heat resistant foamed polyethylene, regular foamed polyethylene and foamed PU		Foamed polyurethane			
Weight		30 kg	31 kg	41 kg		51 kg	52 kg

Electrical specifications

The table below contains the electrical specifications.

Specification		FHYBP35B7V1	FHYBP45B7V1	FHYBP60B7V1	FHYBP71B7V1	FHYBP100B7V1	FHYBP125B7V1
Unit	Phase	1~					
	Voltage	230 V					
	Frequency	50 Hz					
	Recommended fuses	16 A	20 A	—			
Fan motor	Phase	1~					
	Voltage	230 V					
	Nominal running current	0.5 A	0.7 A	0.9 A		1.0 A	1.4 A
	No. of motors x output	1 x 65 W	1 x 85 W	1 x 125 W		1 x 135 W	1 x 225 W
	Power consumption	65 W	85 W	125 W		135 W	225 W

3.7 FDYP

Technical specifications

The table below contains the technical specifications.

Specification		FDYP125B7V1
Heat exchanger	Rows x stages x fin pitch	3 x 14 x 1.75 mm
	Face area	0.338 m²
	Tube type	Hi-XA
	Fin type	MLH7 fin hydrophilia
Fan	Nominal air flow (cooling)	43 m³/min
	Fan motor model	DPA216-178NB
	Fan speed	3 steps
	Drive	Direct drive
	Static external pressure (50/60 Hz)	0-150 Pa
Refrigerant circuit	Type	R407C
Safety and functional devices		See page 1–63 and 3–18
Air filter	Filter class	Eurovent 4/5 (EU2), EN 779 5G2)
	Max. temperature	100°C
	Cleaning	Hot water 30-40°C or compressed air
Temperature control		Computerized control
Insulation	Sound absorbing	Flame and heat resistant foamed felt
Weight		59 kg

Electrical specifications

The table below contains the electrical specifications.

Specification		FDYP125B7V1
Unit	Phase	1~
	Voltage	230 V
	Frequency	50 Hz
Fan motor	No. of motors x output	500 W

3.8 FHYP

Technical specifications

The table below contains the technical specifications.

Specification		FHYP35BV1	FHYP45BV1	FHYP60BV1	FHYP71BV1	FHYP100BV1	FHYP125BV1
Heat exchanger	Length	722 mm		922 mm		1162 mm	1352 mm
	Rows x stages x fin pitch	2 x 12 x 1.75 mm	3 x 12 x 1.75 mm				
	No. of passes	6				11	
	Face area	0.182 m²		0.233 m²		0.293 m²	0.341 m²
	Tube type	N-hiX tubes					
	Fin type	Cross fin coil (multi louvre fins)					
	Empty tube hole	0					
Fan	Nominal air flow (cooling)	H: 13 m³/min L: 10 m³/min		H: 16m³/min L: 13 m³/min	H: 17 m³/min L: 14 m³/min	H: 24 m³/min L: 20 m³/min	H: 30 m³/min L: 25 m³/min
	Nominal air flow (heating)	H: 13 m³/min L: 10 m³/min		H: 16 m³/min L: 13 m³/min	H: 17 m³/min L: 14 m³/min	H: 24 m³/min L: 20 m³/min	H: 30 m³/min L: 25 m³/min
	Fan motor model	3D12K1AA1		4D12K1AA1		3D12K2AA1	4D12K2AA1
	Fan speed	2 steps					
	Fan type	Sirroco fan					
Refrigerant circuit	Type	R407C					
Safety and functional devices		See page 1–63 and 3–18					
Insulation	Heat	Foamed polystyrene / foamed polyethylene					
	Sound absorbing	Foamed polyurethane / glass wool					
Weight		23 kg	24 kg	26 kg	27 kg	32 kg	35 kg

Electrical specifications

The table below contains the electrical specifications.

Specification		FHYP35BV1	FHYP45BV1	FHYP60BV1	FHYP71BV1	FHYP100BV1	FHYP125BV1
Unit	Phase	1~					
	Voltage	230 V					
	Frequency	50 Hz					
Fan motor	Phase	1~					
	Voltage	230 V					
	Power consumption	111 W		115 W	117 W	135 W	144 W
	FLA (Full Load Amps)	0.6 A				0.7 A	
	No. of motors x output	3 x 62 W		4 x 62 W		3 x 130 W	4 x 130 W

3.9 FUYP

Technical specifications

The table below contains the technical specifications.

Specification		FUYP71BV17	FUYP100BV17	FUYP125BV17
Heat exchanger	Length	2101 mm		
	Rows x stages x fin pitch	3 x 6 x 1.8 mm	3 x 8 x 1.8 mm	
	No. of passes	8		12
	Face area	0.265 m²	0.353 m²	
	Tube type	N-hiX tubes		
	Fin type	Cross fin coil (multi louvre fins)		
	Empty tube hole	0	4	0
Fan	Nominal air flow (cooling)	H: 19 m³/min L: 14 m³/min	H: 29 m³/min L: 21 m³/min	H: 32 m³/min L: 23 m³/min
	Nominal air flow (heating)	H: 19 m³/min L: 14 m³/min	H: 29 m³/min L: 21 m³/min	H: 32 m³/min L: 23 m³/min
	Fan motor model	QTS48A10M	QTS50B15M	
	Fan speed	2 steps		
	Fan type	Turbo fan		
Refrigerant circuit	Type	R407C		
Safety and functional devices		See page 1–63 and 3–18		
Air filter		Resin net (with mold resistant)		
Insulation	Heat	Heat resistant foamed polyethylene Regular foamed polyethylene		
Weight		25 kg	31 kg	

Electrical specifications

The table below contains the electrical specifications.

Specification		FUYP71BV17	FUYP100BV17	FUYP125BV17
Unit	Phase	1~		
	Voltage	230 V		
	Frequency	50 Hz		
Fan motor	Phase	1~		
	Voltage	230 V		
	Power consumption	Cooling: 180 W Heating: 160 W	Cooling: 289 W Heating: 269 W	
	FLA (Full Load Amps)	0.6 A	1.0 A	
	No. of motors x output	1 x 45 W	1 x 90 W	

3.10 FAYP and FHYKP

Technical specifications

The table below contains the technical specifications.

Specification		FAYP71LV1	FAYP100BV1	FHYKP35BV1	FHYKP45BV1	FHYKP60BV1	FHYKP71BV1
Heat exchanger	Length	863 mm	1320 mm	778 mm		978 mm	
	Rows x stages x fin pitch	2 x 16 x 1.4 mm	2 x 12 x 1.4 mm	2 x 11 x 1.75 mm	3 x 11 x 1.75 mm		
	No. of passes	4	9	5		9	
	Face area	0.289 m²	0.332 m²	0.186 m²		0.226 m²	
	Tube type	Hi-XA tubes	N-hiX tubes	N-hiX tubes			
	Fin type	Cross fin coil (multi louvre fins)		Cross fin coil (multi louvre fins)			
	Empty tube hole	0		2	3		
Fan	Nominal air flow (cooling)	H: 19 m³/min L: 15 m³/min	H: 23 m³/min L: 19 m³/min	H: 12 m³/min L: 9 m³/min	H: 12 m³/min L: 10 m³/min	H: 17 m³/min L: 14 m³/min	
	Nominal air flow (heating)	H: 19 m³/min L: 15 m³/min	H: 23 m³/min L: 19 m³/min	H: 12 m³/min L: 9 m³/min	H: 12 m³/min L: 10 m³/min	H: 17 m³/min L: 14 m³/min	
	Fan motor model	QCL9686M	QCL1163MA and QCL1163MAB	3D12H1AH1V1	3D12H1J1V1	4D12H1AG1V1	
	Fan speed	2 steps		2 steps			
	Fan type	Cross flow fan		Sirocco fan			
Refrigerant circuit	Type	R407C		R407C			
Safety and functional devices		See page 1–63 and 3–18		See page 1–63 and 3–18			
Insulation	Heat	Foamed polystyrene / foamed polyethylene		Foamed polystyrene / foamed polyethylene			
Weight		13 kg	26 kg	30 kg	31 kg	33 kg	
Decoration panel (option)	Model	—		BYK45FJW1		BYK71FJW1	
	Air filter	—		Resin net (with mold resistant)			
	Weight	—		8.5 kg		9.5 kg	

Electrical specifications

The table below contains the electrical specifications.

Specification		FAYP71LV1	FAYP100BV1	FHYKP35BV1	FHYKP45BV1	FHYKP60BV1	FHYKP71BV1
Unit	Phase	1~		1~			
	Voltage	230 V		230 V			
	Frequency	50 Hz		50 Hz			
Fan motor	Phase	1~		1~			
	Voltage	230 V		230 V			
	Power consumption	68 W	101 W	Cooling: 92 W Heating: 59 W	Cooling: 100 W Heating: 67 W	Cooling: 123 W Heating: 90 W	
	FLA (Full Load Amps)	0.4 A	0.4 A	0.2 A	0.3 A	0.5 A	
	No. of motors x output	1 x 43 W	1 x 49 W	1 x 20 W	1 x 25 W	1 x 45 W	

3.11 FDYMP

Technical specifications

The table below contains the technical specifications.

Specification		FDYMP71L7V1	FDYMP100L7V1	FDYMP125L7V1
Heat exchanger	Length	0.770 mm		1.170 mm
	Rows x stages x fin pitch	3 x 14 x 1.75 mm		
	No. of passes	7		13
	Face area	0.226 m²		0.344 m²
	Tube type	HI-XA Ø7		
	Fin type	Fin Rhombus type		
	Empty tube hole	0		
	No.of fans	2		3
Fan	Nominal air flow (cooling)	H: 19 m³/min L: 14 m³/min	H: 27 m³/min L: 20 m³/min	H: 35 m³/min L: 24 m³/min
	Nominal air flow (heating)	H: 19 m³/min L: 14 m³/min	H: 27 m³/min L: 20 m³/min	H: 35 m³/min L: 24 m³/min
	Fan motor model	—		
	Fan speed	3 steps		
	Fan type	Sirocco fan		
Refrigerant circuit	Type	R407C		
Safety and functional devices		See page 1–63 and 3–18		
Air filter		Resin net		
Insulation	Heat	Both liquid and gas pipes		
Weight		38.1 kg		48.6 kg

Electrical specifications

The table below contains the electrical specifications.

Specification		FDYMP71L7V1	FDYMP100L7V1	FDYMP125L7V1
Unit	Phase	1~		
	Voltage	230 V		
	Frequency	50 Hz		
Fan motor	Phase	1~		
	Voltage	230 V		
	Power consumption	150 W	195 W	415 W
	No. of motors x output	1 x 130 W	1 x 155 W	1 X 225 W

4 Functional Diagrams

4.1 What Is in This Chapter?

Introduction

This chapter contains the following information:

- Functional diagrams
- Pipe connection diameters.

Functional diagrams

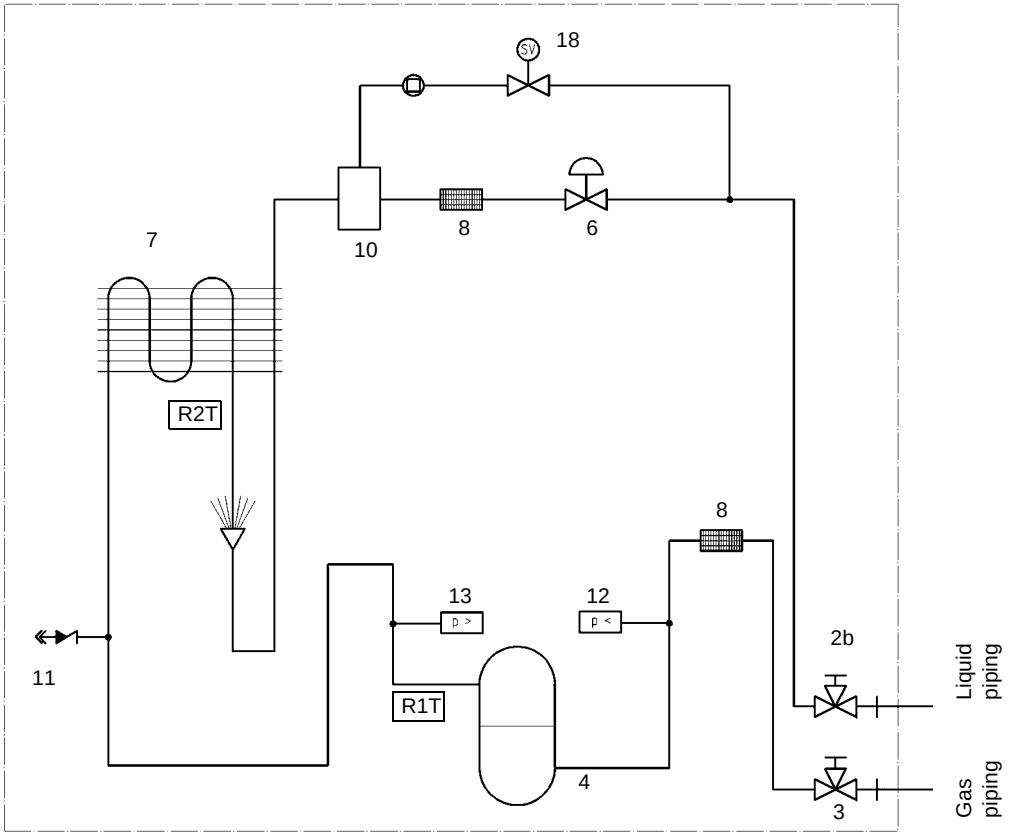
This chapter contains the following functional diagrams:

Functional diagram	See page
4.2–RP71L7, RP100L7 and RP125L7: Outdoor Unit	1–64
4.3–RYP71L7, RYP100L7 and RYP125L7: Outdoor Unit	1–68
4.4–FHYBP, FHYCP, FUYP, FAYP, FDYP, FHYP, FHYKP and FDYMP	1–72
4.5–Piping Components	1–75

4.2 RP71L7, RP100L7 and RP125L7: Outdoor Unit

Functional diagram

The illustration below shows the functional diagram of the refrigeration circuit.



Components

For a description of the components, see ’Piping Components’ on page 1–75.

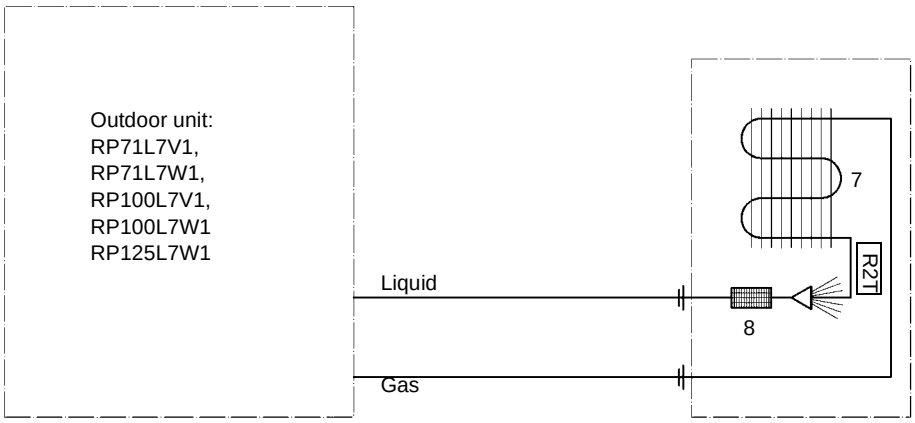
Pipe connection diameters

The table below contains the refrigerant pipe connection diameters.

Model	∅ Gas pipe (flare)	∅ Liquid pipe (flare)
RP71L7V1	➤ For pair, see page 1-65. ➤ For twin, see page 1-66. ➤ For triple, see page 1-67.	
RP71L7W1		
RP100L7V1		
RP100L7W1		
RP125L7W1		

Functional diagram: Pair

The illustration below shows the functional diagram of the refrigeration circuit.



Components

For a description of the components, see 'Piping Components' on page 1–75.

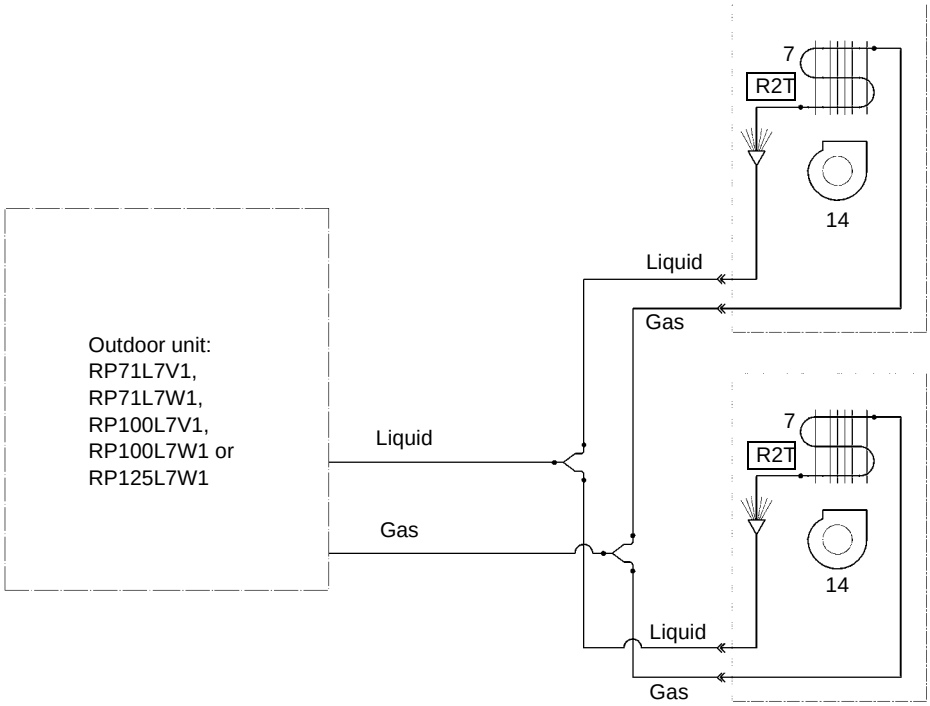
Pipe connection diameters

The table below contains the refrigerant pipe connection diameters (O.D.).

Model	∅ **Gas pipe (flare)**	∅ **Liquid pipe (flare)**
RP71L7V1	15.9 mm	9.5 mm
RP71L7W1		
RP100L7V1	19.1 mm	
RP100L7W1		
RP125L7W1		

Functional diagram: Twin

The illustration below shows the functional diagram of the refrigeration circuit.



Components

For a description of the components, see 'Piping Components' on page 1–75.

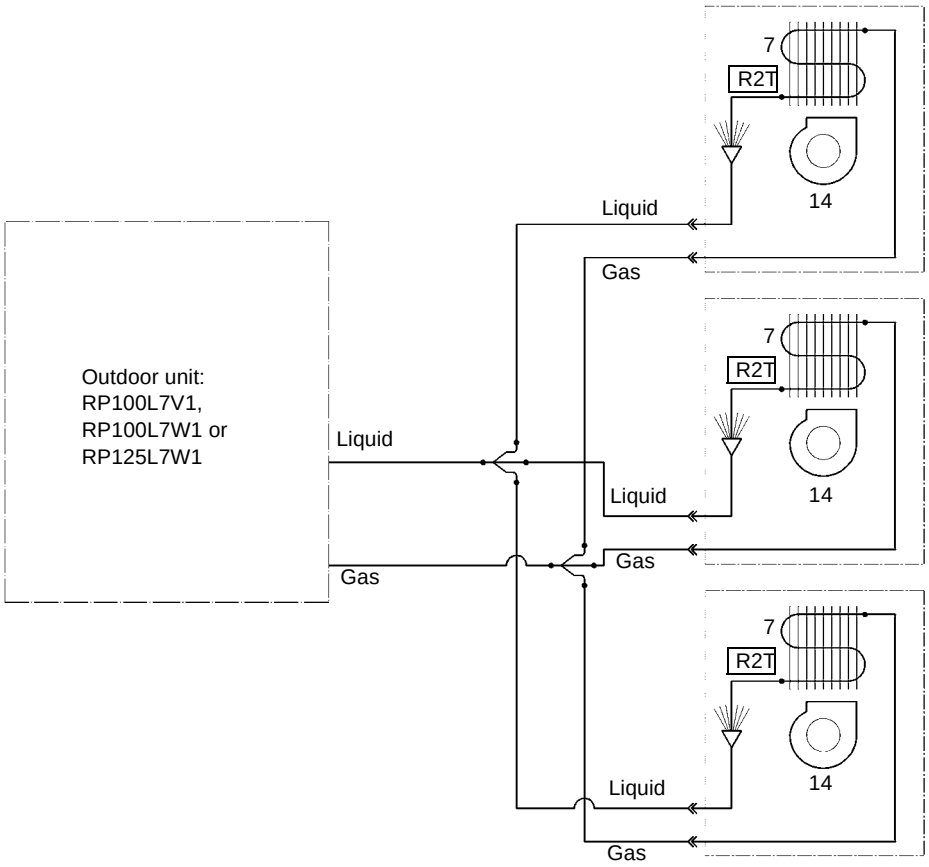
Pipe connection diameters

The table below contains the refrigerant pipe connection diameters (O.D.).

Model	∅ **Gas pipe (flare)**	∅ **Liquid pipe (flare)**
RP71L7V1	15.9 mm	9.5 mm
RP71L7V1		
RP100L7V1	19.1 mm	
RP100L7W1		
RP125L7W1		

Functional diagram: Triple

The illustration below shows the functional diagram of the refrigeration circuit.



Components

For a description of the components, see 'Piping Components' on page 1–75.

Pipe connection diameters

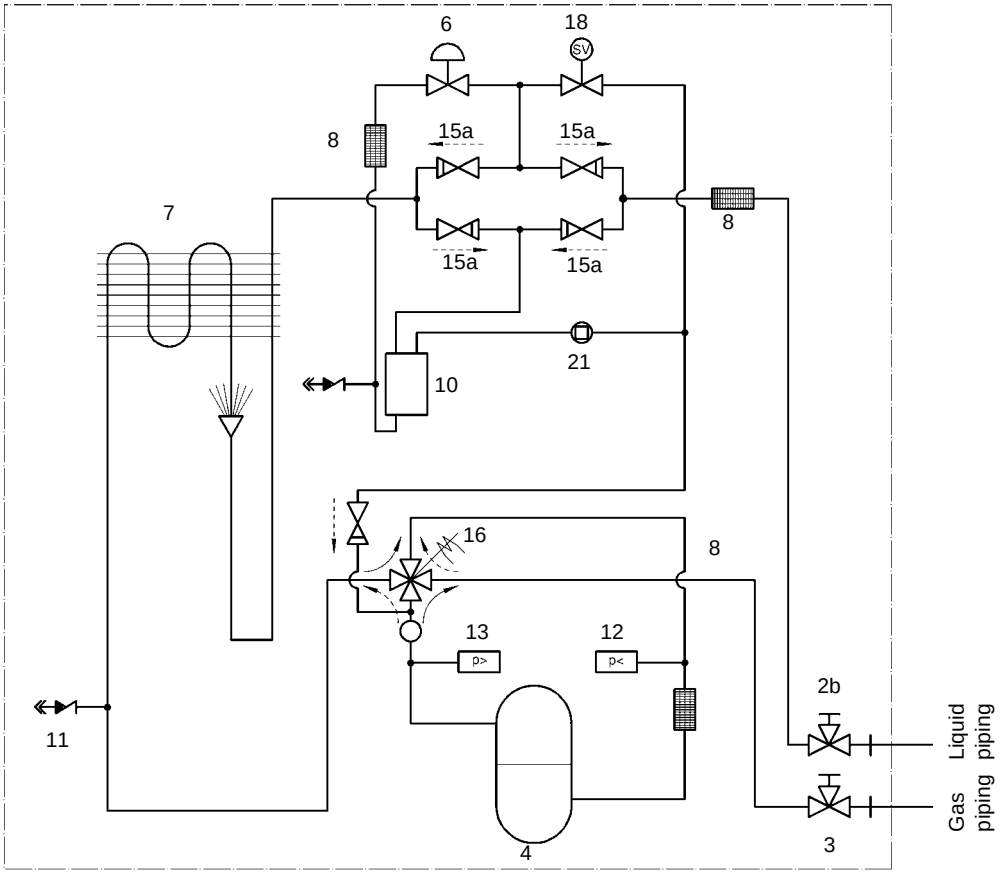
The table below contains the refrigerant pipe connection diameters (O.D.).

Model	∅ **Gas pipe (flare)**	∅ **Liquid pipe (flare)**
RP100L7V1	19.1 mm	9.5 mm
RP100L7W1		
RP125L7W1		

4.3 RYP71L7, RYP100L7 and RYP125L7: Outdoor Unit

Functional diagram

The illustration below shows the functional diagram of the refrigeration circuit.



Components

For a description of the components, see ’Piping Components’ on page 1–75.

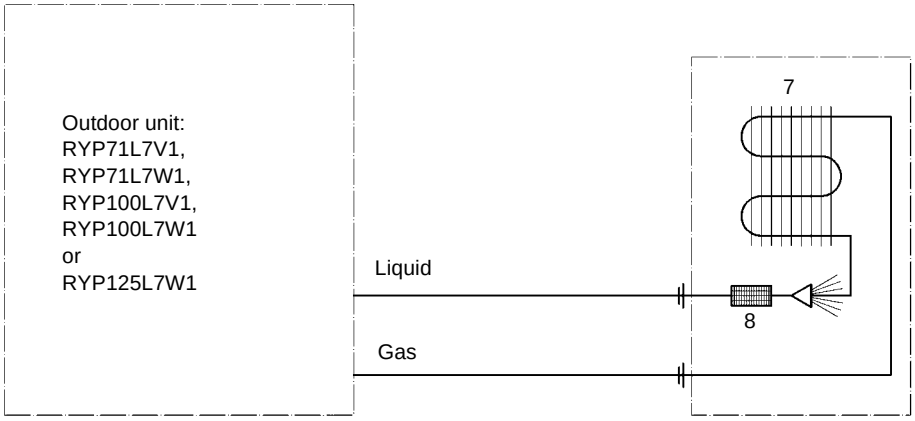
Pipe connection diameters

The table below contains the refrigerant pipe connection diameters.

Model	∅ Gas pipe (flare)	∅ Liquid pipe (flare)
RYP71L7V1	➤ For pair, see page 1-69. ➤ For twin, see page 1-70. ➤ For triple, see page 1-71.	
RYP71L7W1		
RYP100L7V1		
RYP100L7W1		
RYP125L7W1		

Functional diagram: Pair

The illustration below shows the functional diagram of the refrigeration circuit.



Components

For a description of the components, see 'Piping Components' on page 1–75.

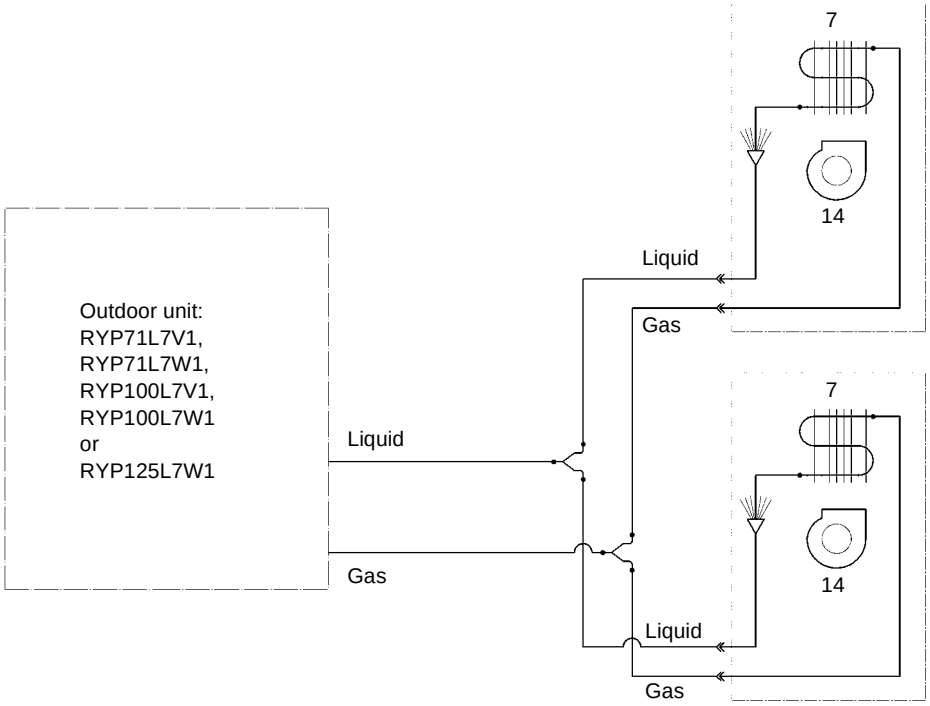
Pipe connection diameters

The table below contains the refrigerant pipe connection diameters (O.D.).

Model	∅ Gas pipe (flare)	∅ Liquid pipe (flare)
RYP71L7V1	15.9 mm	9.5 mm
RYP71L7W1		
RYP100L7V1	19.1 mm	
RYP100L7W1		
RYP125L7W1		

Functional diagram: Twin

The illustration below shows the functional diagram of the refrigeration circuit.



Components

For a description of the components, see 'Piping Components' on page 1–75.

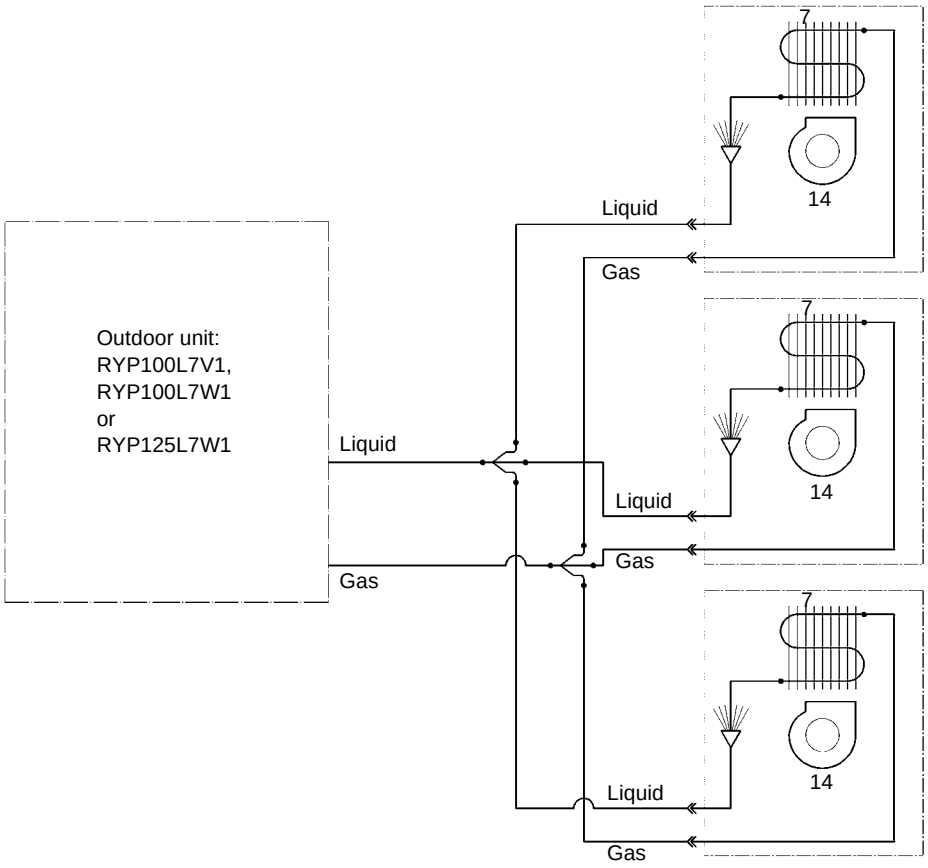
Pipe connection diameters

The table below contains the refrigerant pipe connection diameters (O.D.).

Model	∅ **Gas pipe (flare)**	∅ **Liquid pipe (flare)**
RYP71L7V1	15.9 mm	9.5 mm
RYP71L7W1		
RYP100L7V1	19.1 mm	
RYP100L7W1		
RYP125L7W1		

Functional diagram: Triple

The illustration below shows the functional diagram of the refrigeration circuit.



Components

For a description of the components, see ’Piping Components’ on page 1–75.

Pipe connection diameters

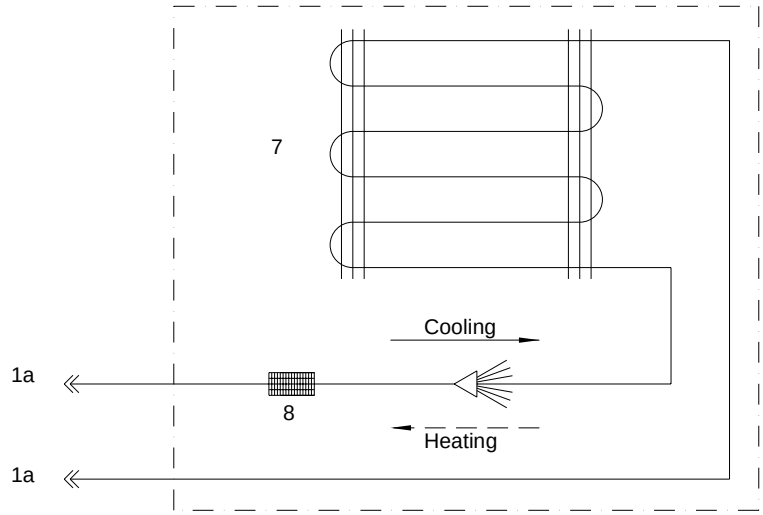
The table below contains the refrigerant pipe connection diameters (O.D.).

Model	∅ **Gas pipe (flare)**	∅ **Liquid pipe (flare)**
RYP100L7V1	19.1 mm	9.5 mm
RYP100L7W1		
RYP125L7W1		

4.4 FHYBP, FHYCP, FUYP, FAYP, FDYP, FHYP, FHYKP and FDYMP

Functional diagram

The illustration below shows the functional diagram of the refrigeration circuit.



Components

For a description of the components, see 'Piping Components' on page 1–75.

Pipe connection diameters

The table below contains the refrigerant pipe connection diameters.

Model	∅ Gas pipe (flare)	∅ Liquid pipe (flare)
FHYBP35B7V1	12.70 mm	6.35 mm
FHYBP45B7V1	15.90 mm	
FHYBP60B7V1		9.52 mm
FHYBP71B7V1		
FHYBP100B7V1	19.05	
FHYBP125B7V1		
FHYCP35B7V1	12.70 mm	6.35 mm
FHYCP45B7V1	15.90 mm	
FHYCP60B7V1		9.52 mm
FHYCP71B7V1		
FHYCP100B7V1	19.05 mm	
FHYCP125B7V1		
FUYP71BV17	15.90 mm	9.52 mm
FUYP100BV17	19.05 mm	
FUYP125BV17		
FAYP71BV1	15.90 mm	9.52 mm
FAYP100BV1	19.05 mm	
FDYP125B7V1	19.05 mm	9.52 mm

Model	∅ Gas pipe (flare)	∅ Liquid pipe (flare)
FHYP35BV1	12.70 mm	6.35 mm
FHYP45BV1		
FHYP60BV1	15.90 mm	9.52 mm
FHYP71BV1		
FHYP100BV1	19.05 mm	
FHYP125BV1		
FHYKP35BV1	12.70 mm	6.35 mm
FHYKP45BV1		
FHYKP60BV1	15.90 mm	9.52 mm
FHYKP71BV1		
FDYMP71L7V1	12.0~12.4 mm	18.6~19.0 mm
FDYMP100L7V1	12.0~12.4 mm	22.9~23.3 mm
FDYMP125L7V1		

4.5 Piping Components

Components

The table below contains the different components of the functional diagrams.

No.	Component	Function / remark
1a	Flare connection	See pipe connection diameter.
1b	Flange connection	
2a	Liquid stop valve	The liquid stop valve is used as shut-off valve in case of a pump-down.
2b	Liquid stop valve with service port	
3	Gas stop valve with service port	The gas stop valve is used as shut-off valve in case of a pump-down.
4	Compressor	The compressor can restart after 3 min from last stop.
5a	Capillary tube	The capillary tube allows pressure equalization during a compressor OFF-cycle.
5b		The capillary tube expands the liquid to enable evaporation in the evaporator.
6	Electronic expansion valve	The expansion valve expands the liquid to enable evaporation in the evaporator. The opening degree is controlled to obtain the optimum discharge temperature.
7	Heat exchanger	The heat exchanger is of the multi louvre fin type. Hi-X -tubes and coated waffle louvre fins are used.
8	Filter	The filter is used to collect impurities, which may enter the system during installation and is also used to avoid blockage of the capillaries and other fine mechanical parts of the unit.
9	Accumulator	The accumulator is used to separate the gas from the liquid in order to protect the compressor against liquid pumping.
10	Liquid receiver	The liquid receiver is used to make sure only completely liquefied refrigerant is sent to the expansion valve. It is also used as a container in which surplus refrigerant is stored.
11	Check valve with service port	The check valve allows you to connect a gauge.
12	Low-pressure switch	The low-pressure switch stops the operation of the unit when the pressure becomes abnormally low.
13	High-pressure switch	The high-pressure switch stops the operation of the unit when the pressure becomes abnormally high.
14	Propeller fan and fan motor	The propeller fan creates air displacement across the heat exhanger.
15a	One-way valve	The one-way valve is used to force the refrigerant liquid to flow through the receiver and the expansion valve in the same direction both in cooling and heating.
15b		The one-way valve is used to release overpressure in the liquid receiver during stand-still.
16	4-way valve (reversing solenoid valve)	The 4-way valve is used to select refrigerant flow in cooling or heating mode. When the 4-way valve switches from ON to OFF, a timer starts counting up to 150 as soon as the cooling or defrosting operation is stopped. This delay time is to eliminate the switching sound.
17	Muffler	The muffler is used to absorb the refrigerant noise from the compressor.
18	Solenoid valve	➤ Y1S: Capacity control solenoid valve ➤ Y3S: Liquid injection solenoid valve ➤ SV: Solenoid valve (Purge liquid receiver)
19	Thermistor	➤ R1T: Air thermistor ➤ R2T: Coil thermistor ➤ R3T: Discharge pipe thermistor
20	Strainer	

5 Switch Box Layout

5.1 What Is in This Chapter?

Introduction

This chapter shows the switch box components.

Outdoor units

This chapter contains the following switch box layouts:

Switch box layout	See page
5.2–R(Y)P71-100L7V1	1–78
5.3–R(Y)P71~100L7W1	1–79
5.4–R(Y)P125L7W1	1–80

Indoor units

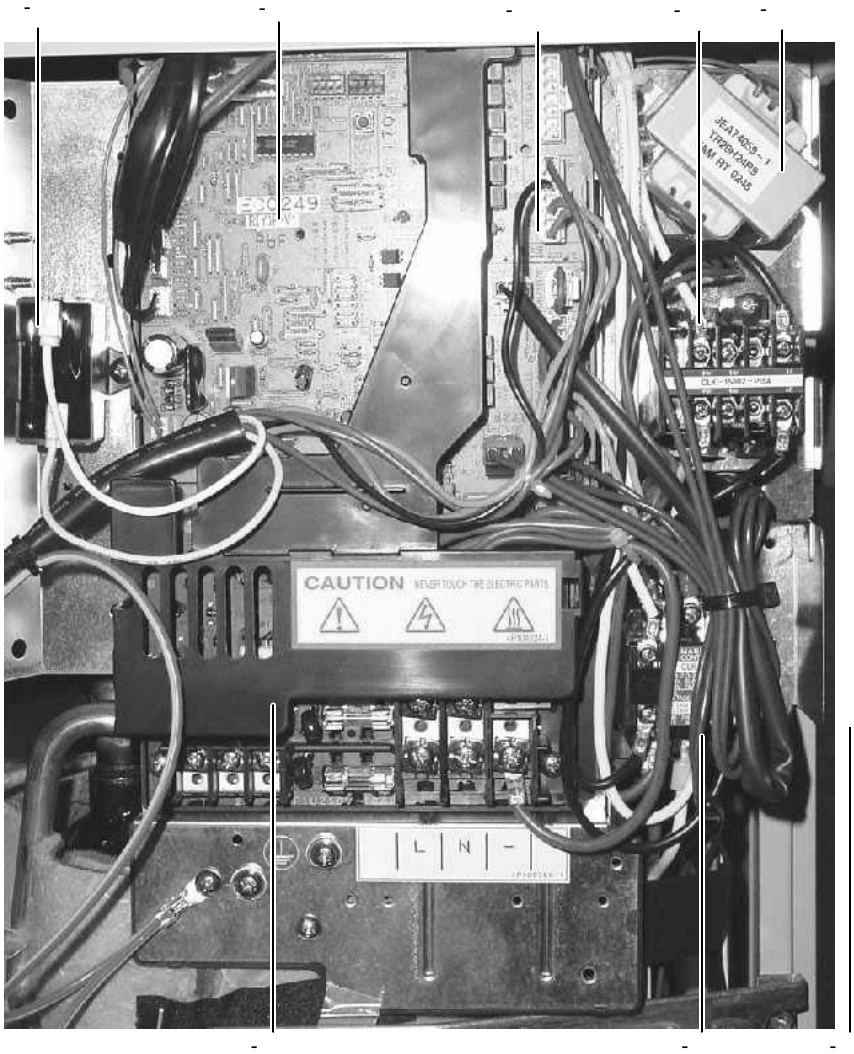
This chapter contains the following switch box layouts:

Switch box layout	See page
5.5–FHYCP35B7V1, FHYCP45B7V1, FHYCP60B7V1, FHYCP71B7V1, FHYCP100B7V1 and FHYCP125B7V1	1–81
5.6–FHYBP35B7V1, FHYBP45B7V1, FHYBP60B7V1, FHYBP71B7V1, FHYBP100B7V1 and FHYBP125B7V1	1–82
5.7–FDYP125B7V1	1–83
5.8–FHYP35BV1, FHYP45BV1, FHYP60BV1, FHYP71BV1, FHYP100BV1 and FHYP125BV1	1–84
5.9–FUYP71BV17, FUYP100BV17 and FUYP125BV17	1–85
5.10–FAYP100BV1	1–86
5.11–FAYP71LV1	1–87
5.12–FHYKP35BV1, FHYKP45BV1, FHYKP60BV1 and FHYKP71BV1	1–88
5.13–FDYMP71~125L7V1	1–89

5.2 R(Y)P71-100L7V1

Switch box

The illustration below shows the switch box layout.



Components

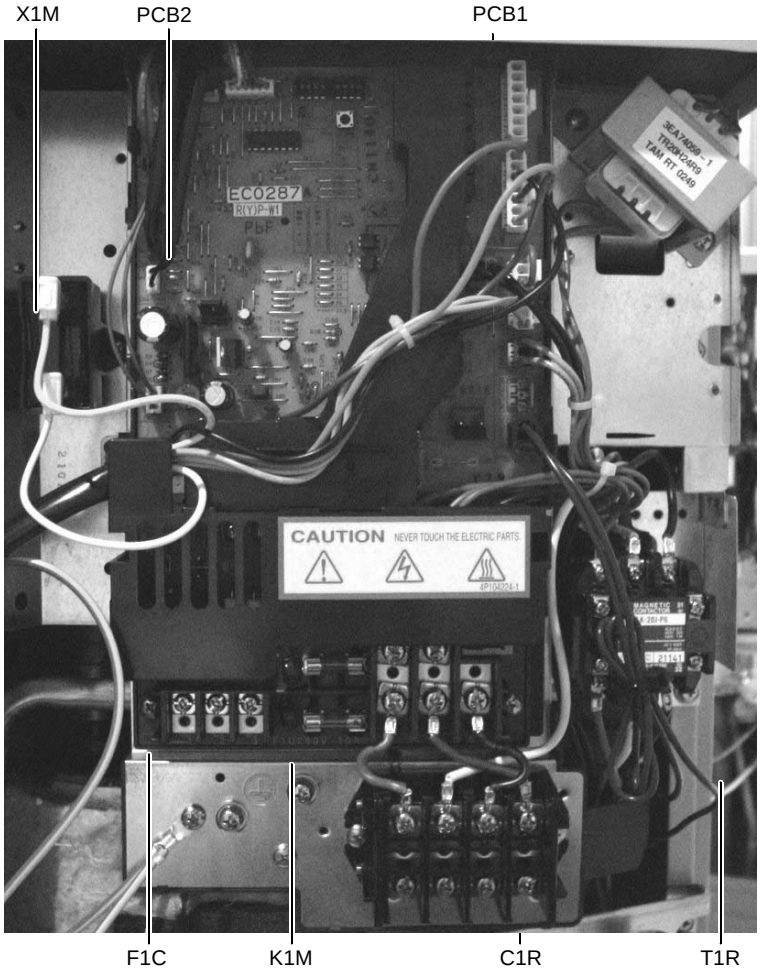
The table below contains the components of the switch box.

Symbol	Component
T1R	Transformer
K1S	Starting contactor
C1R	Fan motor capacitor
K1M	Magnetic contactor
F1C	Overcurrent relay
X1M	Terminal strip
PCB1	Printed circuit board
PCB2	Printed circuit board (interlock PCB)

5.3 R(Y)P71~100L7W1

Switch box

The illustration below shows the switch box layout.



Components

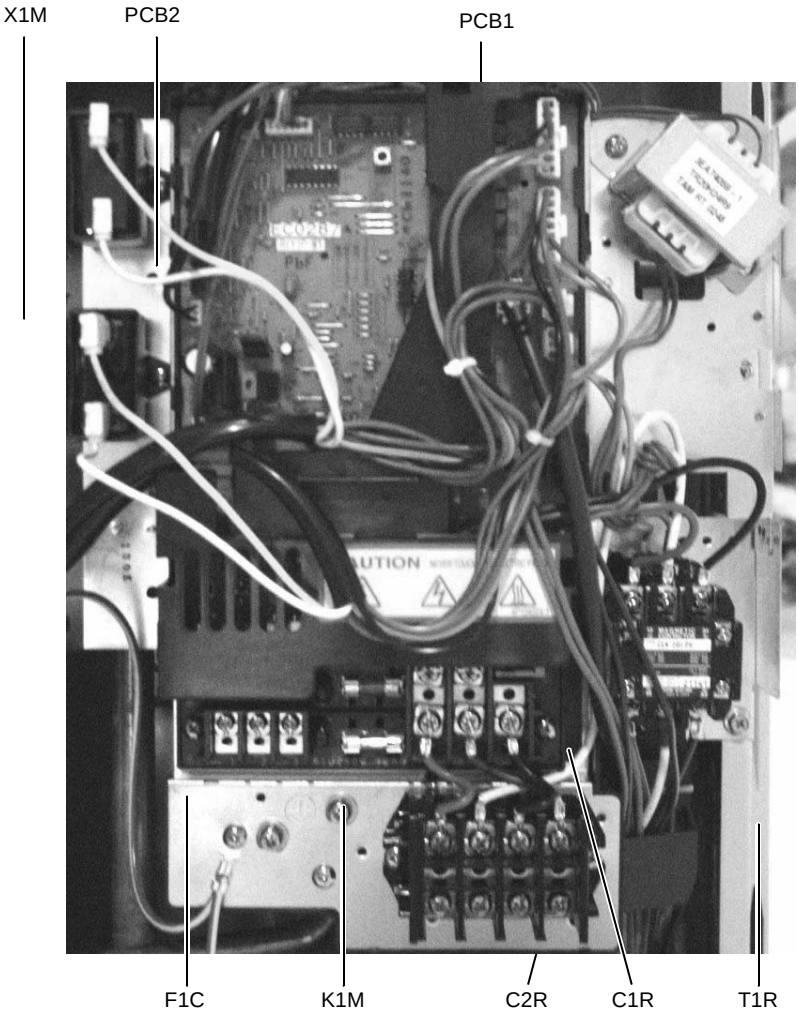
The table below contains the components of the switch box.

Symbol	Component
X1M	Terminal strip
PCB1	Printed circuit board
PCB2	Printed circuit board (interlock PCB)
T1R	Transformer
C1R	Fan motor capacitor
K1M	Magnetic contactor
F1C	Overcurrent relay

5.4 R(Y)P125L7W1

Switch box

The illustration below shows the switch box layout.



Components

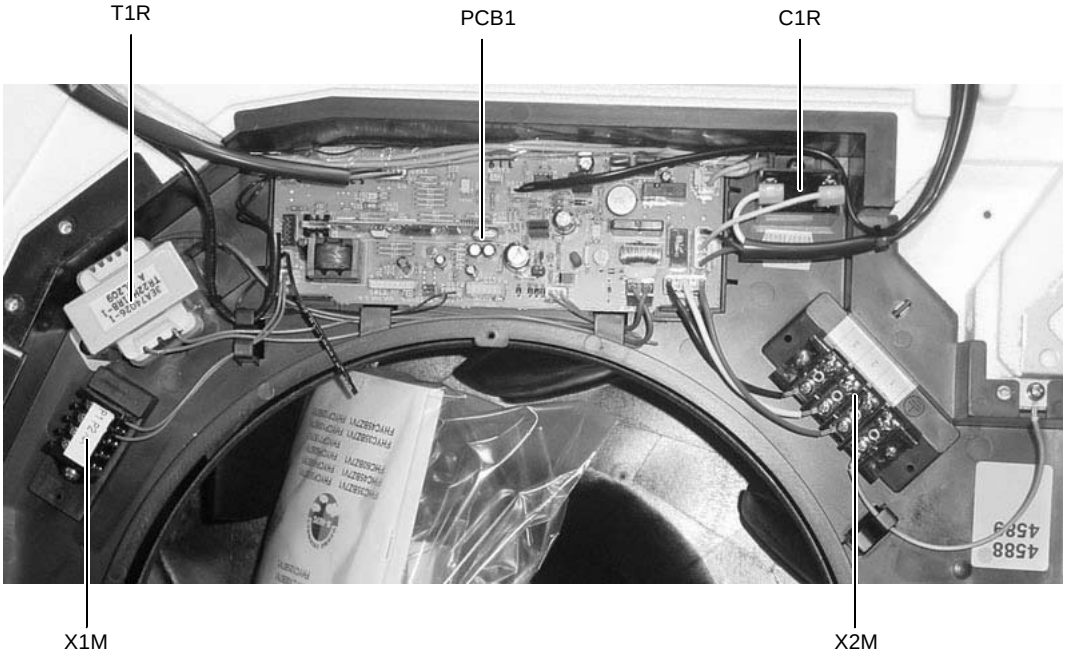
The table below contains the components of the switch box.

Symbol	Component
X1M	Terminal strip
PCB1	Printed circuit board
PCB2	Printed circuit board (interlock PCB)
T1R	Transformer
C1R	Fan motor capacitor 1
C2R	Fan motor capacitor 2
K1M	Magnetic contactor
F1C	Overcurrent relay

5.5 FHYCP35B7V1, FHYCP45B7V1, FHYCP60B7V1, FHYCP71B7V1, FHYCP100B7V1 and FHYCP125B7V1

Switch box

The illustration below shows the switch box layout.



Components

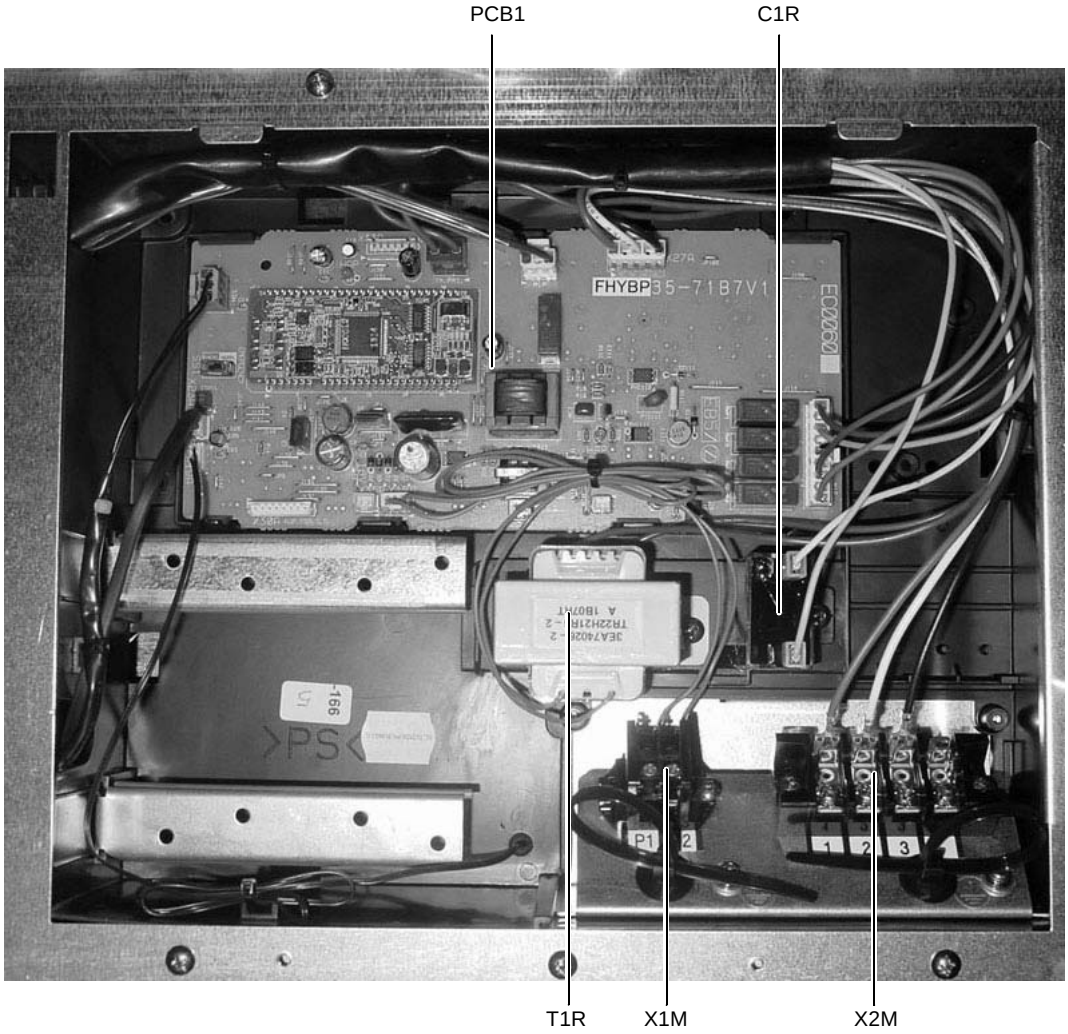
The table below contains the components of the switch box.

Symbol	Component
T1R	Transformer
PCB1	Printed circuit board
C1R	Fan motor capacitor
X2M	Terminal strip (interconnection wiring)
X1M	Terminal strip (for remote controller P1/P2)

5.6 FHYBP35B7V1, FHYBP45B7V1, FHYBP60B7V1, FHYBP71B7V1, FHYBP100B7V1 and FHYBP125B7V1

Switch box

The illustration below shows the switch box layout.



Components

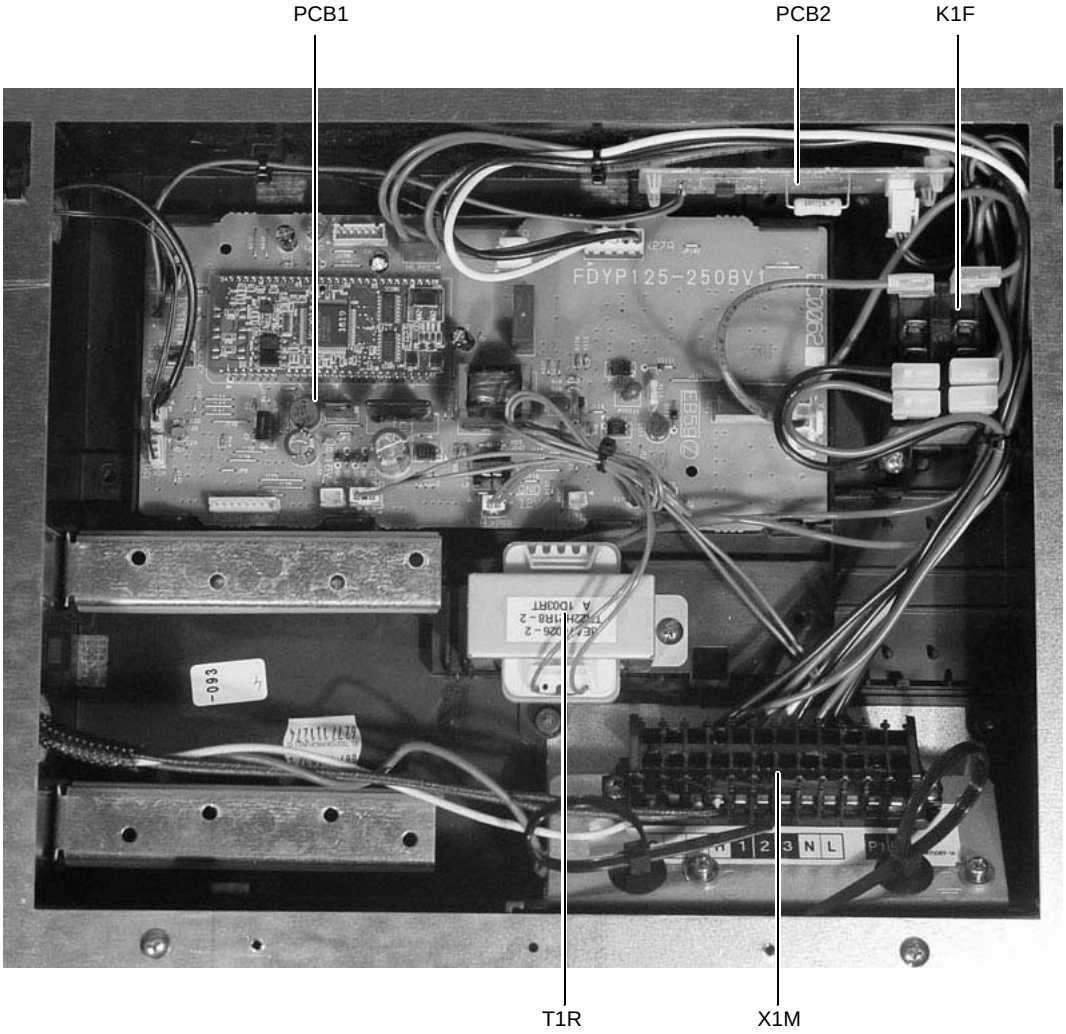
The table below contains the components of the switch box.

Symbol	Component
PCB1	Printed circuit board
C1R	Fan motor capacitor
X2M	Terminal strip (interconnection wiring)
X1M	Terminal strip (for remote controller P1/P2)
T1R	Transformer

5.7 FDYP125B7V1

Switch box

The illustration below shows the switch box layout.



Components

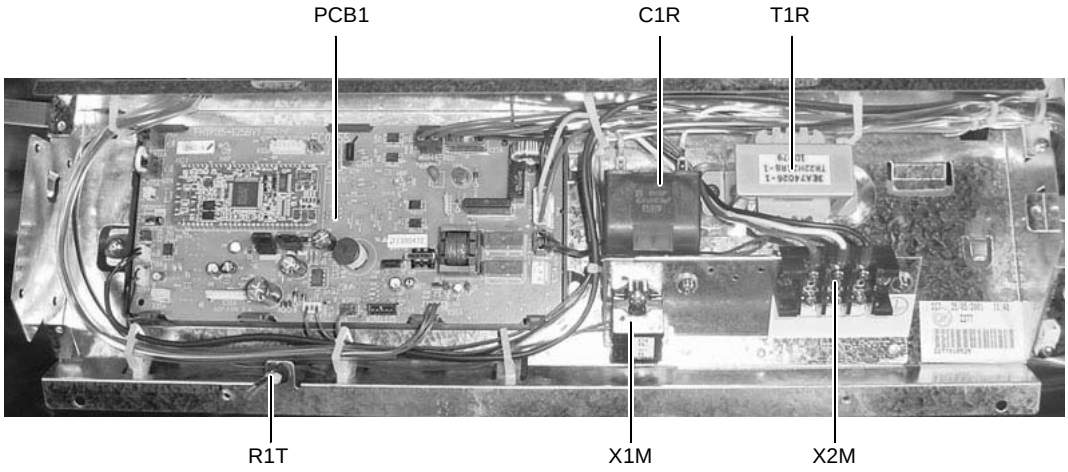
The table below contains the components of the switch box.

Symbol	Component
PCB1	Printed circuit board
PCB2	Printed circuit board (interlock PCB)
K1F	Magnetic contactor
X1M	Terminal strip
T1R	Transformer

5.8 FHYP35BV1, FHYP45BV1, FHYP60BV1, FHYP71BV1, FHYP100BV1 and FHYP125BV1

Switch box

The illustration below shows the switch box layout.



Components

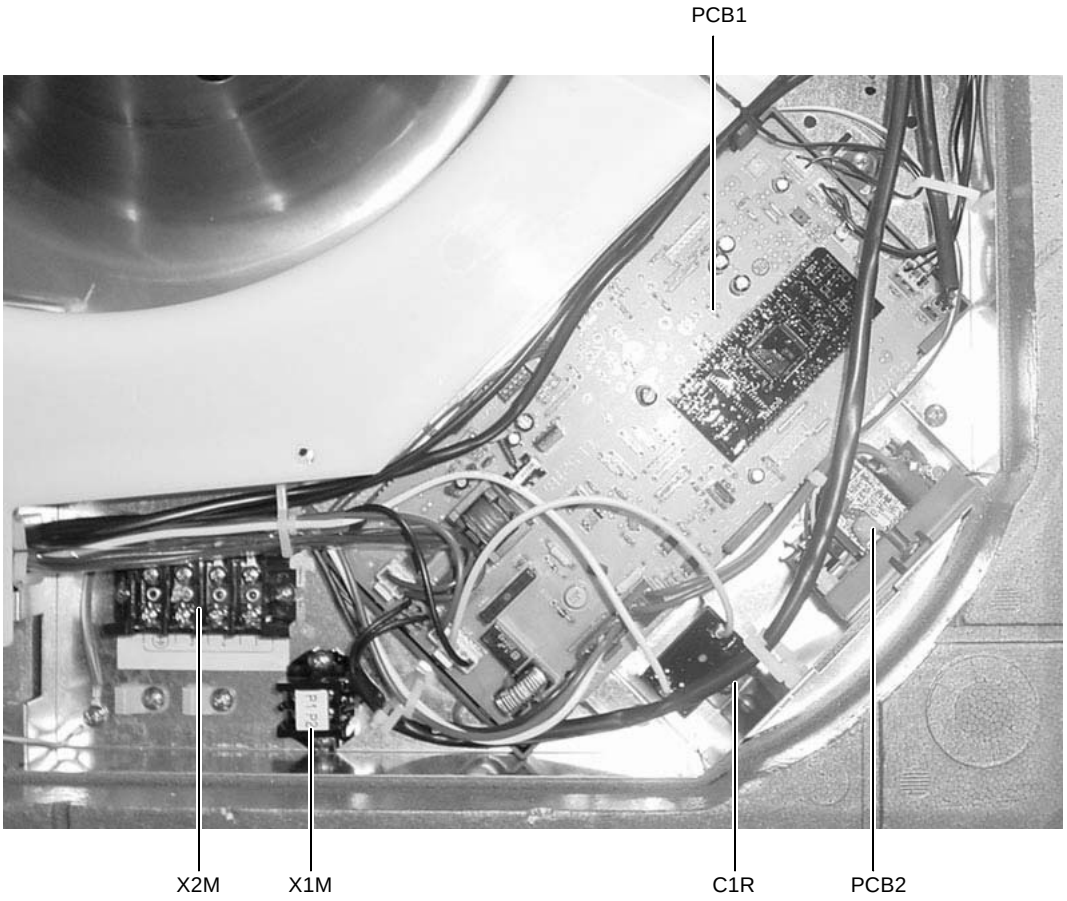
The table below contains the components of the switch box.

Symbol	Component
PCB1	Printed circuit board
C1R	Fan motor capacitor
T1R	Transformer
X2M	Terminal strip (interconnection wiring)
X1M	Terminal strip (for remote controller P1/P2)
R1T	Air thermistor

5.9 FUYP71BV17, FUYP100BV17 and FUYP125BV17

Switch box

The illustration below shows the switch box layout.



Components

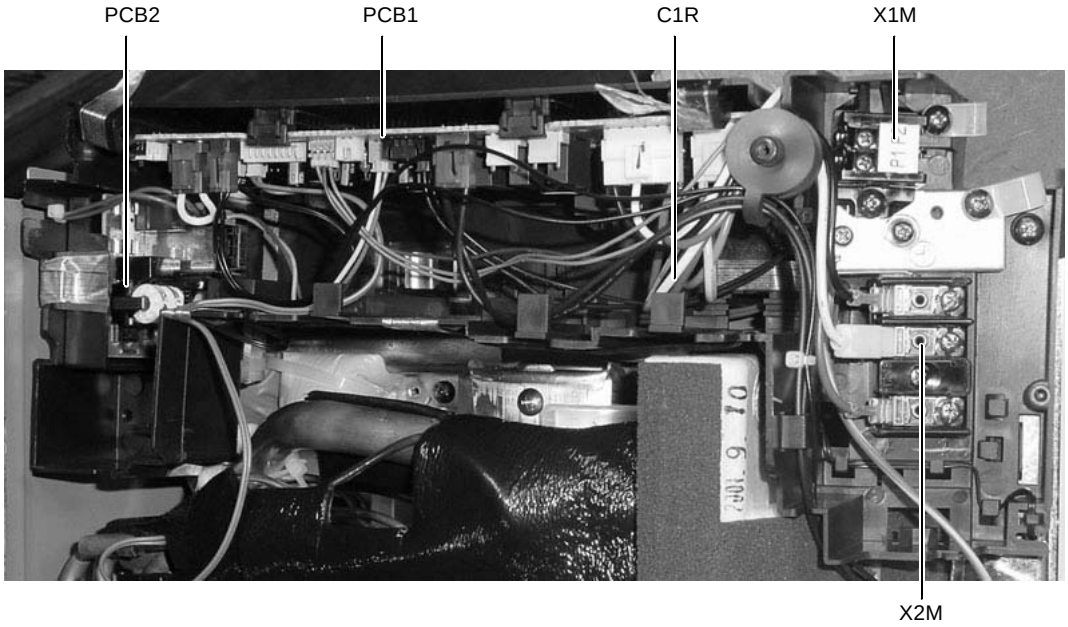
The table below contains the components of the switch box.

Symbol	Component
PCB1	Printed circuit board
PCB2	Printed circuit board (power supply PCB)
C1R	Fan motor capacitor
X1M	Terminal strip (for remote controller P1/P2)
X2M	Terminal strip (interconnection wiring)

5.10 FAYP100BV1

Switch box

The illustration below shows the switch box layout.



Components

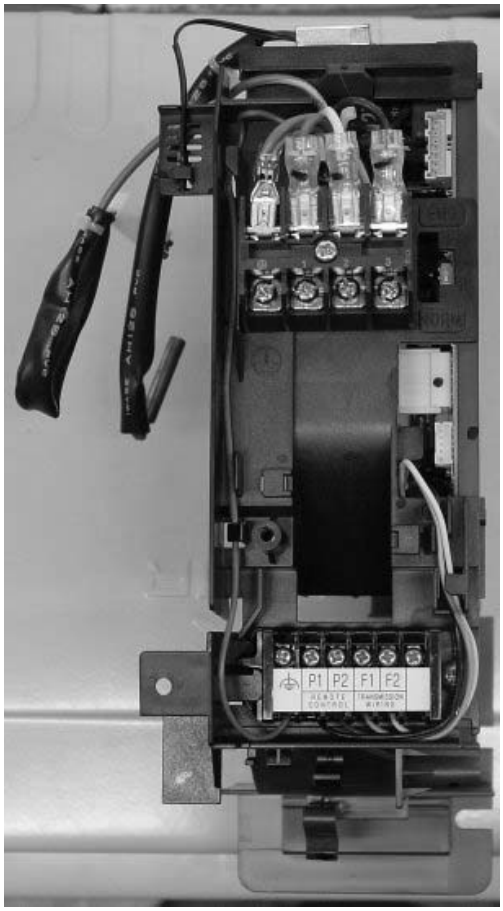
The table below contains the components of the switch box.

Symbol	Component
PCB1	Printed circuit board
PCB2	Printed circuit board
C1R	Fan motor capacitor
X1M	Terminal strip (for remote controller P1/P2)
X2M	Terminal strip (for interconnection wiring)

5.11 FAYP71LV1

Switch box

The illustration below shows the switch box layout.



Components

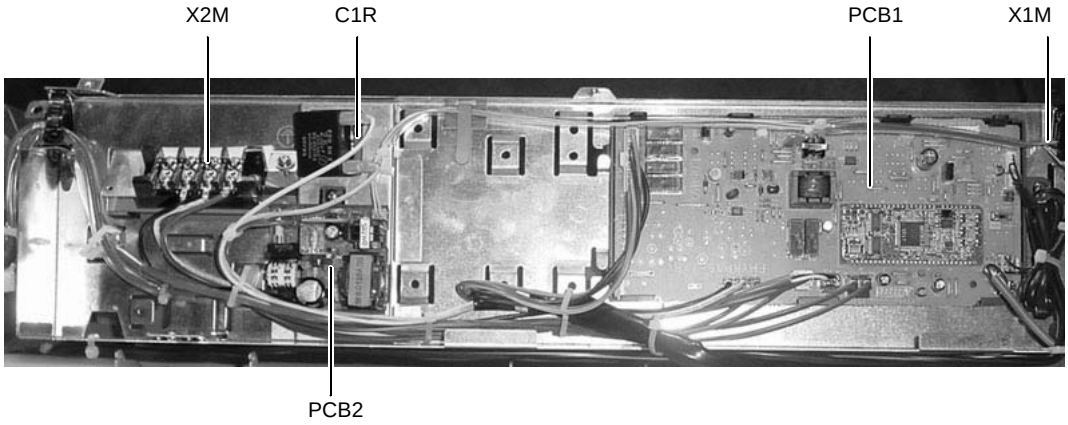
The table below contains the components of the switch box.

Symbol	Component

5.12 FHYKP35BV1, FHYKP45BV1, FHYKP60BV1 and FHYKP71BV1

Switch box

The illustration below shows the switch box layout.



Components

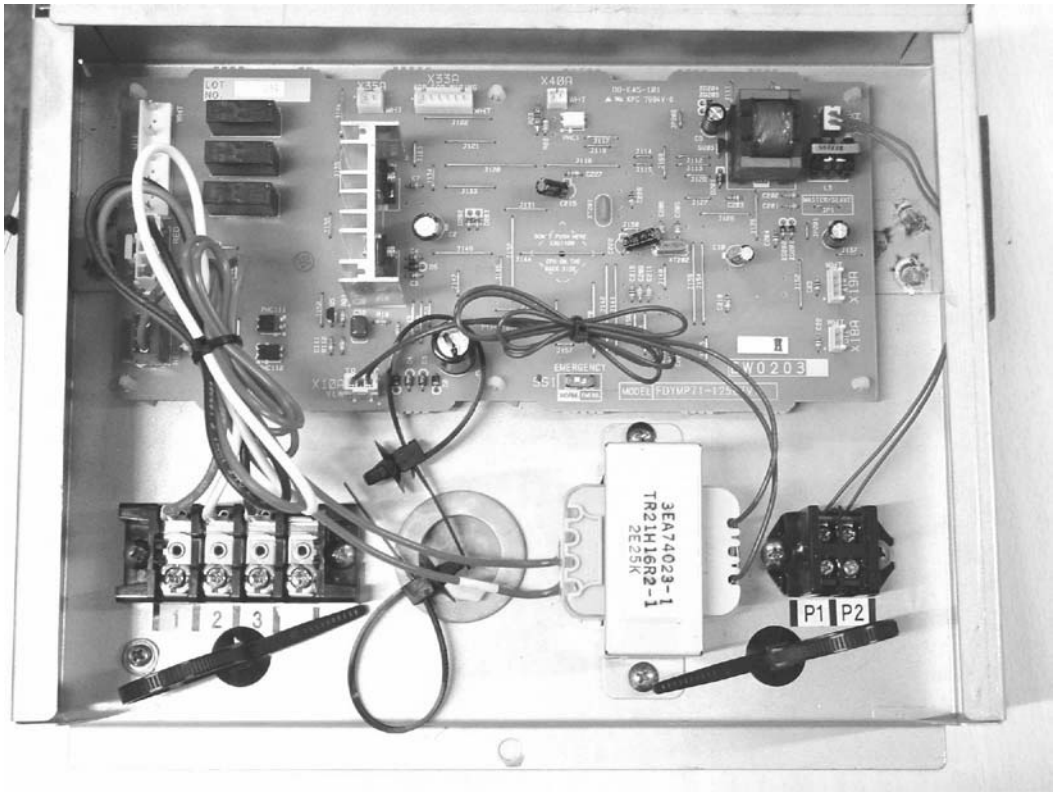
The table below contains the components of the switch box.

Symbol	Component
X2M	Terminal strip (interconnection wiring)
C1R	Fan motor capacitor
PCB1	Printed circuit board
X1M	Terminal strip (for remote controller P1/P2)
PCB2	Printed circuit board (power supply PCB)

5.13 FDYMP71~125L7V1

Switch box

The illustration below shows the switch box layout.



Components

The table below contains the components of the switch box.

Symbol	Component

6 Wiring Diagrams: Outdoor Units

6.1 What Is in This Chapter?

Introduction

This chapter contains the wiring diagrams of the outdoor units.

Wiring diagrams

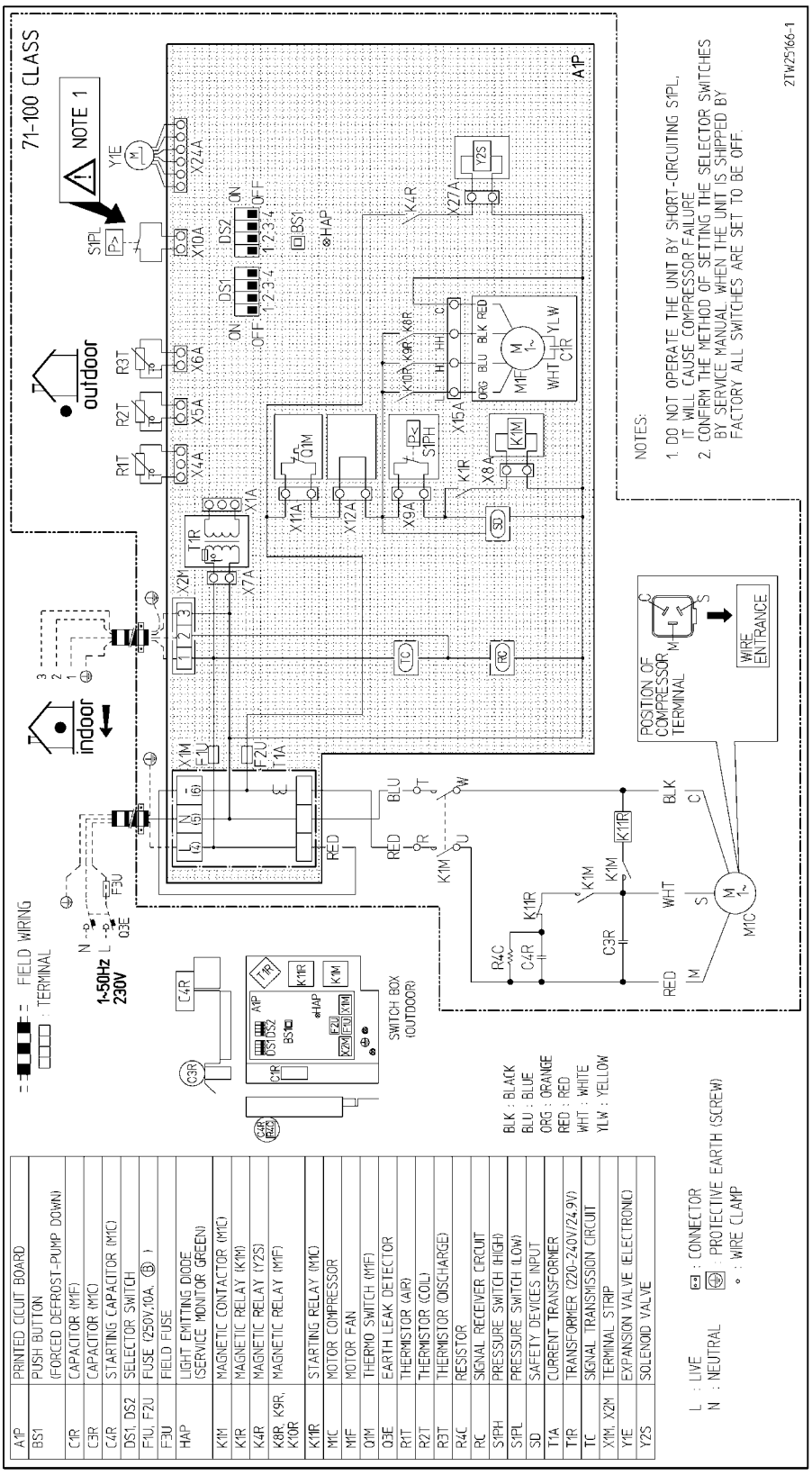
This chapter contains the following wiring diagrams:

Wiring diagram	See page
6.2–RP71-100L7V1	1–92
6.3–RP71-100L7W1	1–93
6.4–RP125L7W1	1–94
6.5–RYP71-100L7V1	1–95
6.6–RYP71-100L7W1	1–96
6.7–RYP125L7W1	1–97

6.2 RP71-100L7V1

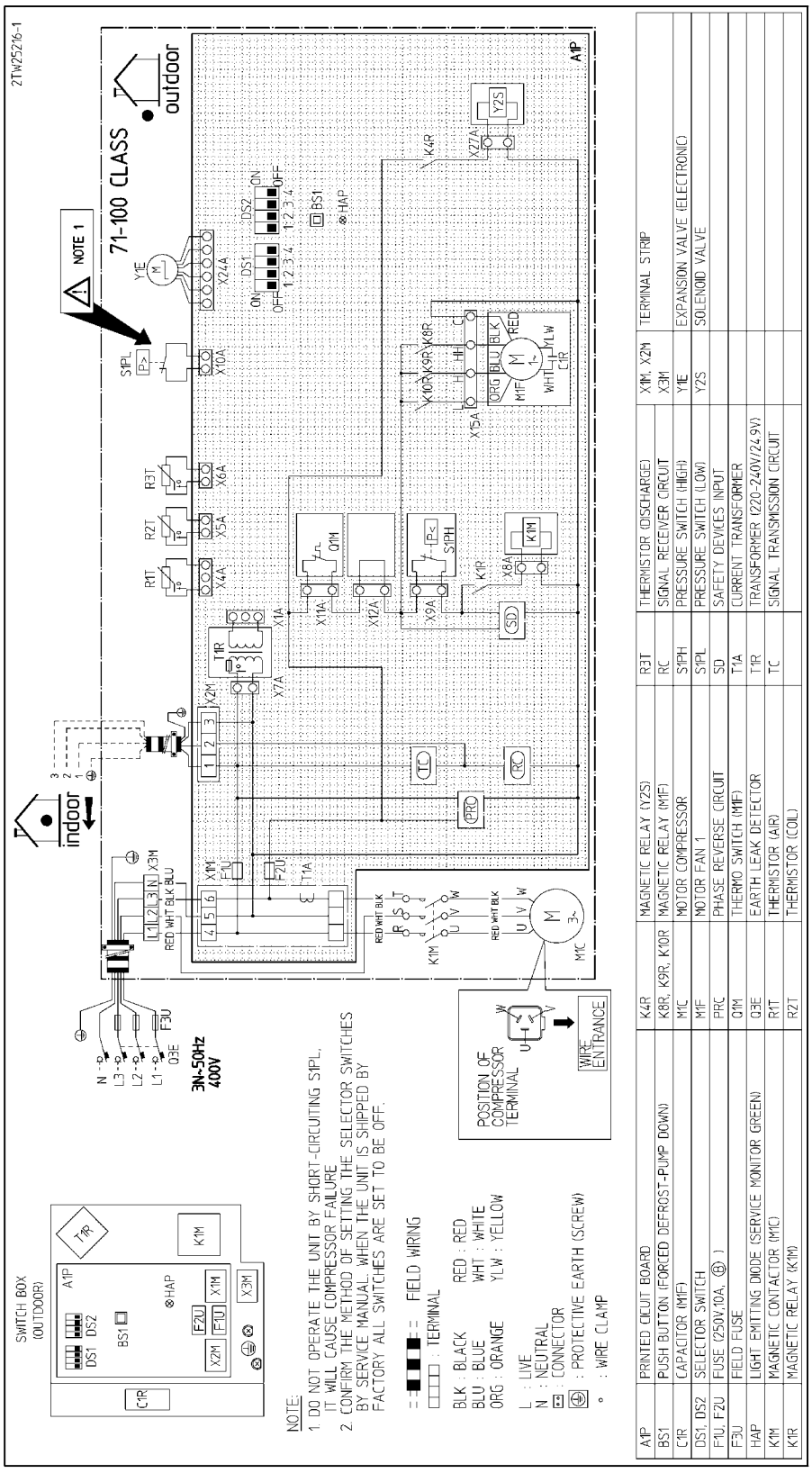
Wiring diagram

The illustration below shows the wiring diagram of the unit.



6.3 RP71-100L7W1

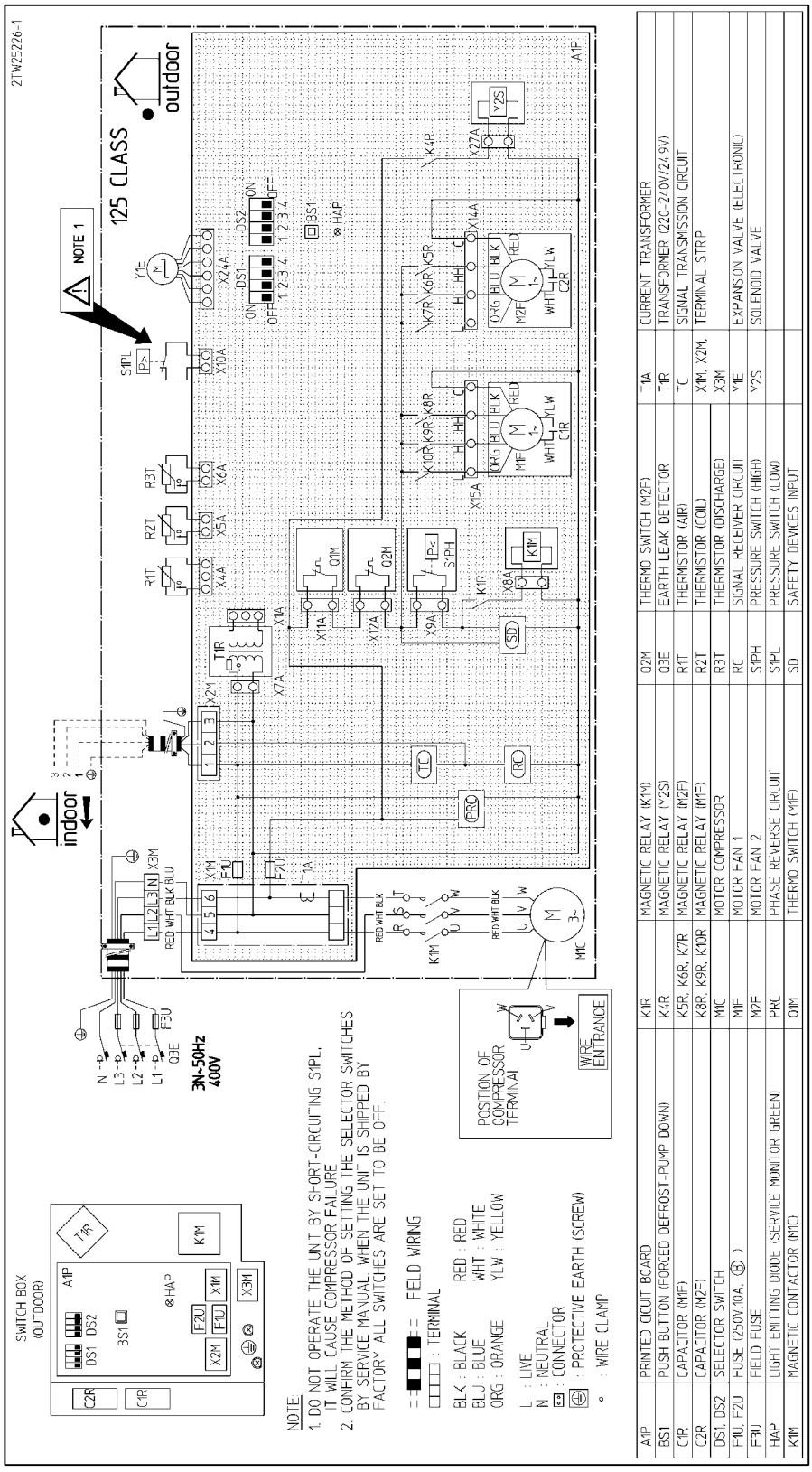
Wiring diagram The illustration below shows the wiring diagram of the unit.



6.4 RP125L7W1

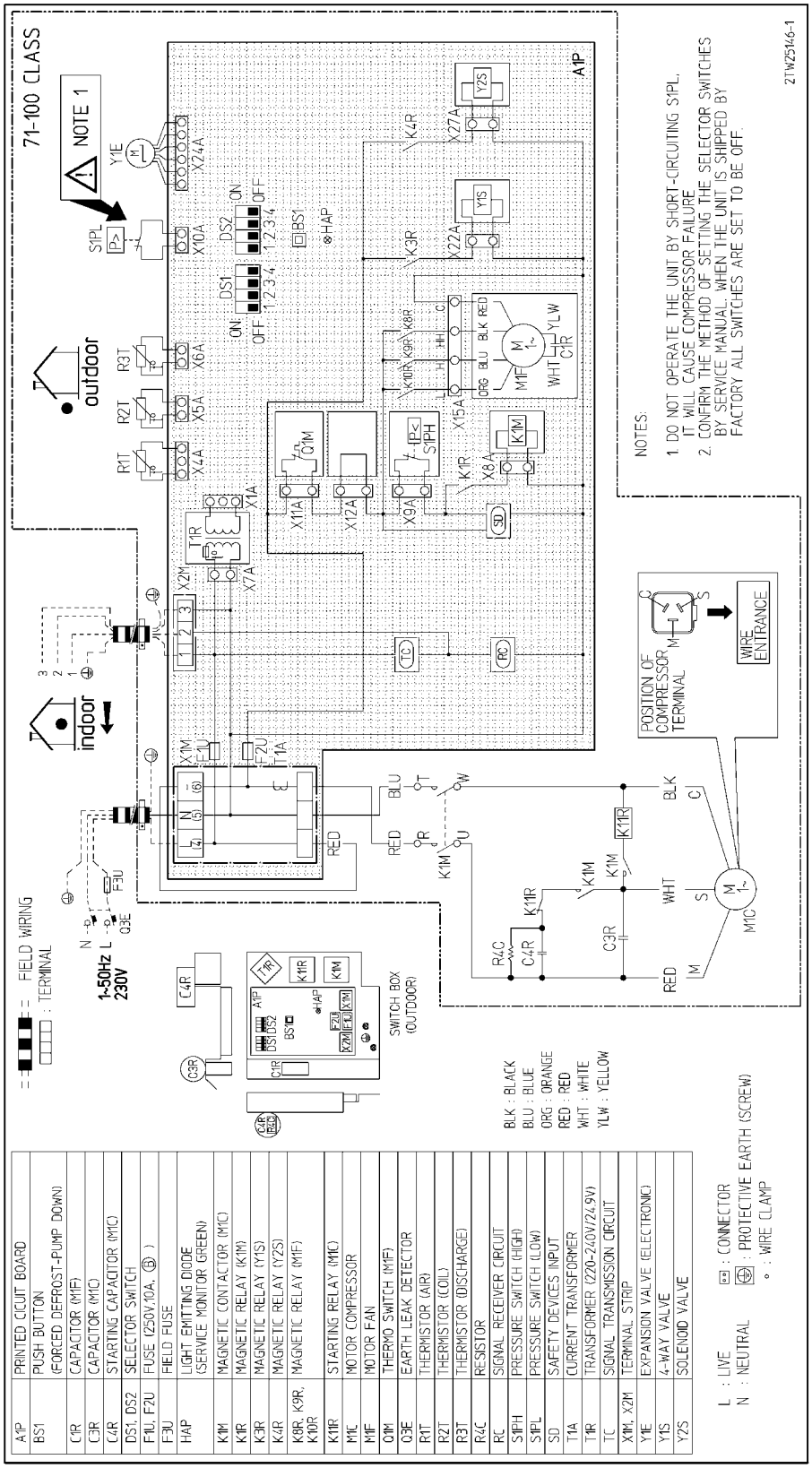
Wiring diagram

The illustration below shows the wiring diagram of the unit.


2TW25226-1
125 CLASS
outdoor
indoor
NOTE 1
3N~50Hz
400V
SWITCH BOX
(OUTDOOR)
NOTE
1. DO NOT OPERATE THE UNIT BY SHORT-CIRCUITING S1PL, IT WILL CAUSE COMPRESSOR FAILURE
2. CONFIRM THE METHOD OF SETTING THE SELECTOR SWITCHES BY SERVICE MANUAL WHEN THE UNIT IS SHIPPED BY FACTORY ALL SWITCHES ARE SET TO BE OFF.
= FIELD WIRING
: TERMINAL
BLK : BLACK RED : RED
BLU : BLUE WHT : WHITE
ORG : ORANGE YLW : YELLOW
L : LIVE
N : NEUTRAL
: CONNECTOR
: PROTECTIVE EARTH (SCREW)
: WIRE CLAMP
POSITION OF COMPRESSOR TERMINAL
WIRE ENTRANCE
A1P PRINTED CICUIT BOARD
BS1 PUSH BUTTON (FORCED DEFROST-PUMP DOWN)
C1R CAPACITOR (M1F)
C2R CAPACITOR (M2F)
DS1, DS2 SELECTOR SWITCH
F1U, F2U FUSE (250V,10A,)
F3U FIELD FUSE
HAP LIGHT EMITTING DIODE (SERVICE MONITOR GREEN)
K1M MAGNETIC CONTACTOR (M1C)
K1R MAGNETIC RELAY (K1M)
K4R MAGNETIC RELAY (Y2S)
K5R, K6R, K7R MAGNETIC RELAY (M2F)
K8R, K9R, K10R MAGNETIC RELAY (M1F)
M1C MOTOR COMPRESSOR
M1F MOTOR FAN 1
M2F MOTOR FAN 2
PRC PHASE REVERSE CIRCUIT
Q1M THERMO SWITCH (M1C)
Q2M THERMO SWITCH (M2F)
Q3E EARTH LEAK DETECTOR
R1T THERMISTOR (AIR)
R2T THERMISTOR (COIL)
R3T THERMISTOR (DISCHARGE)
RC SIGNAL RECEIVER CIRCUIT
S1PH PRESSURE SWITCH (HIGH)
S1PL PRESSURE SWITCH (LOW)
SD SAFETY DEVICES INPUT
T1A CURRENT TRANSFORMER
T1R TRANSFORMER (220-240V/24.9V)
TC SIGNAL TRANSMISSION CIRCUIT
X1M, X2M, X3M TERMINAL STRIP
Y1E EXPANSION VALVE (ELECTRONIC)
Y2S SOLENOID VALVE

6.5 RYP71-100L7V1

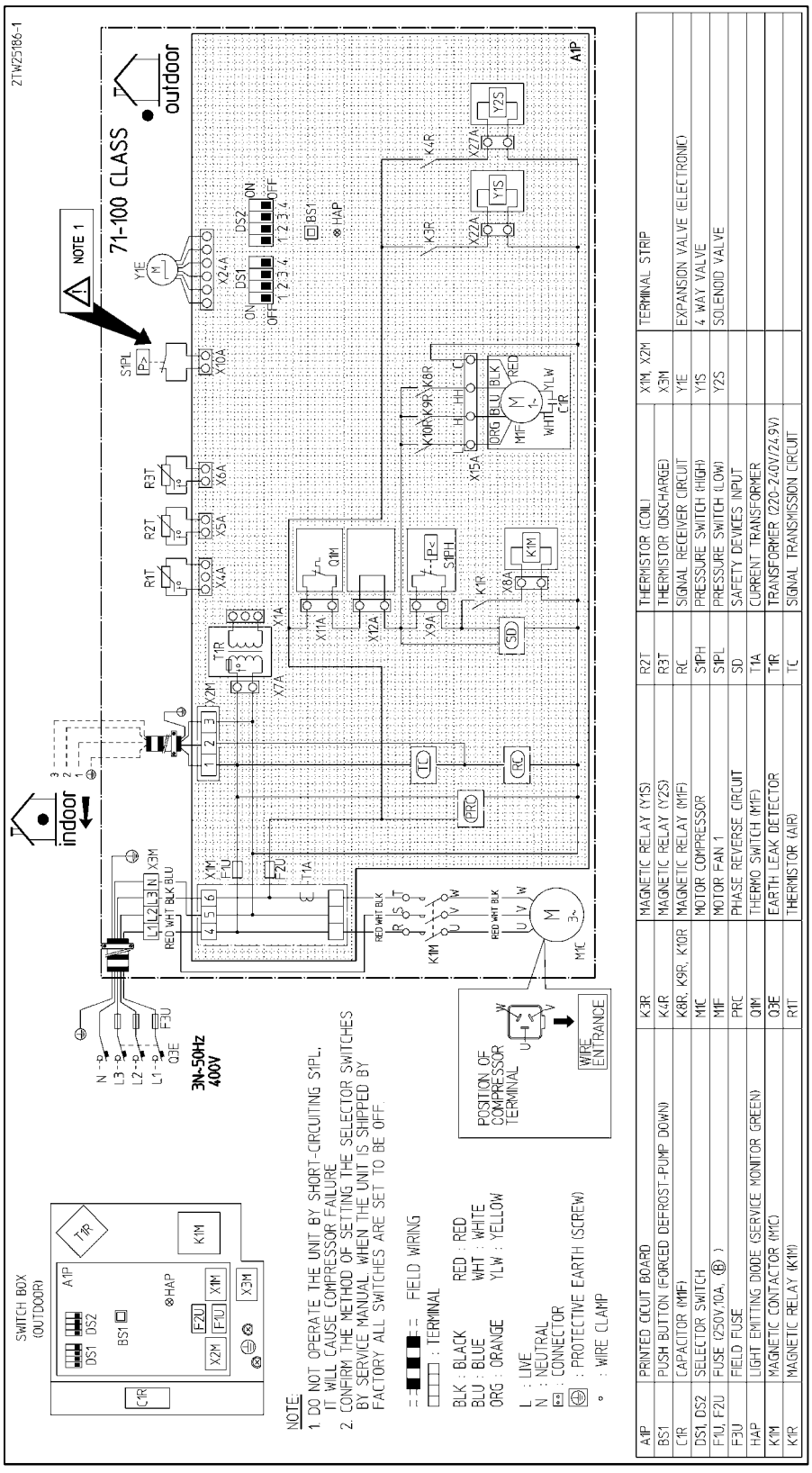
Wiring diagram The illustration below shows the wiring diagram of the unit.



6.6 RYP71-100L7W1

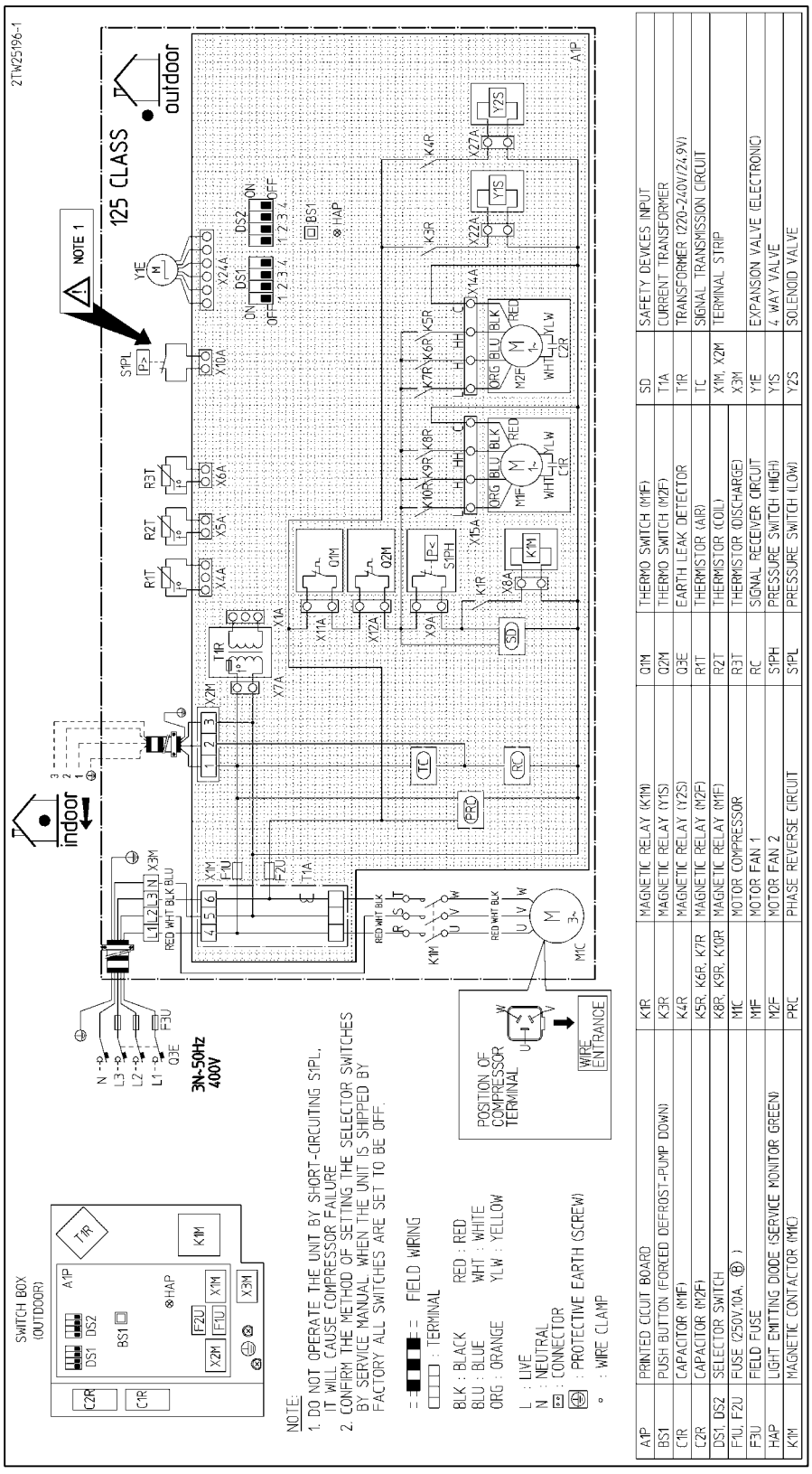
Wiring diagram

The illustration below shows the wiring diagram of the unit.



6.7 RYP125L7W1

Wiring diagram The illustration below shows the wiring diagram of the unit.



7 Wiring Diagrams: Indoor Units

7.1 What Is in This Chapter?

Introduction

This chapter contains the wiring diagrams of the indoor units.

Wiring diagrams

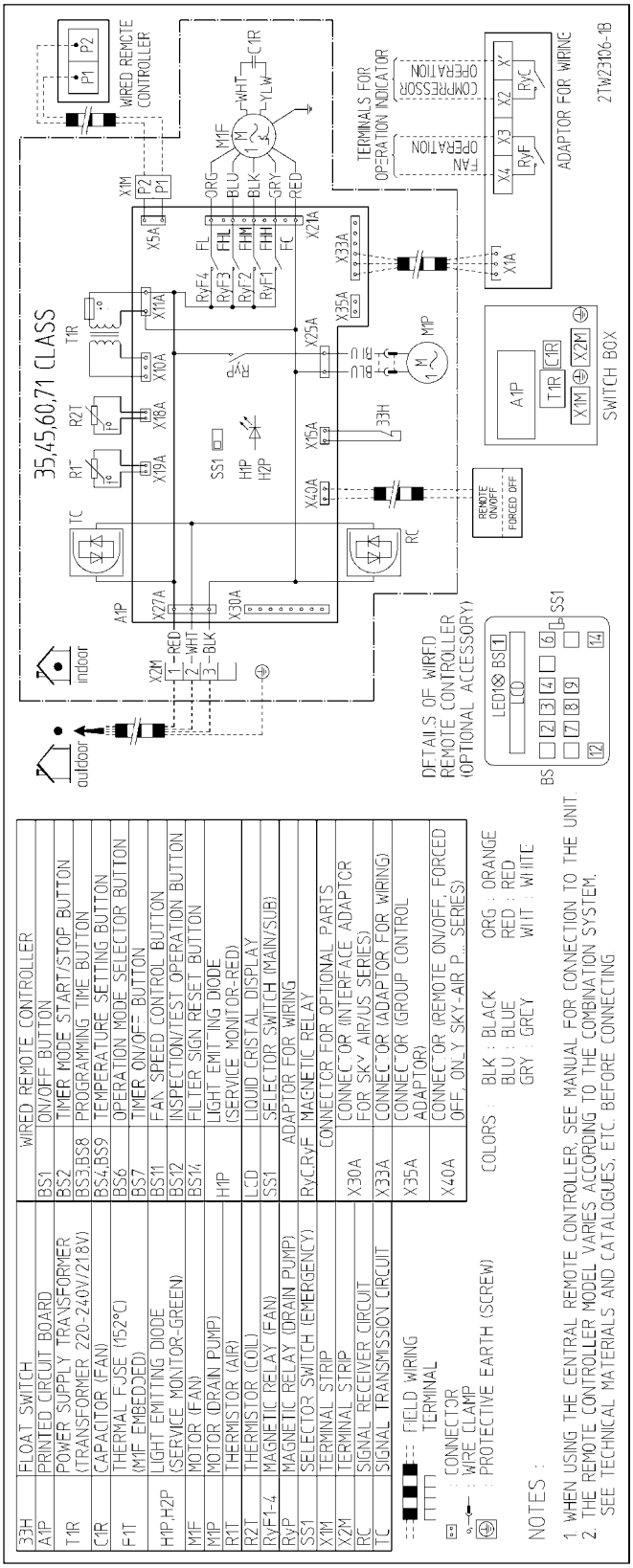
This chapter contains the following wiring diagrams:

Wiring diagram	See page
7.2–FHYBP35B7V1, FHYBP45B7V1, FHYBP60B7V1 and FHYBP71B7V1	1–100
7.3–FHYBP100B7V1 and FHYBP125B7V1	1–101
7.4–FHYCP35B7V1, FHYCP45B7V1, FHYCP60B7V1, FHYCP71B7V1, FHYCP100B7V1 and FHYCP125B7V1	1–102
7.5–FDYP125B7V1	1–103
7.6–FHYP35BV1, FHYP45BV1, FHYP60BV1, FHYP71BV1, FHYP100BV1 and FHYP125BV1	1–104
7.7–FUYP71BV17, FUYP100BV17 and FUYP125BV17	1–105
7.8–FAYP100BV1	1–106
7.9–FAYP71LV1	1–107
7.10–FHYKP35BV1, FHYKP45BV1, FHYKP60BV1 and FHYKP71BV1	1–108
7.11–FDYMP71~125L7V	1–109

7.2 FHYBP35B7V1, FHYBP45B7V1, FHYBP60B7V1 and FHYBP71B7V1

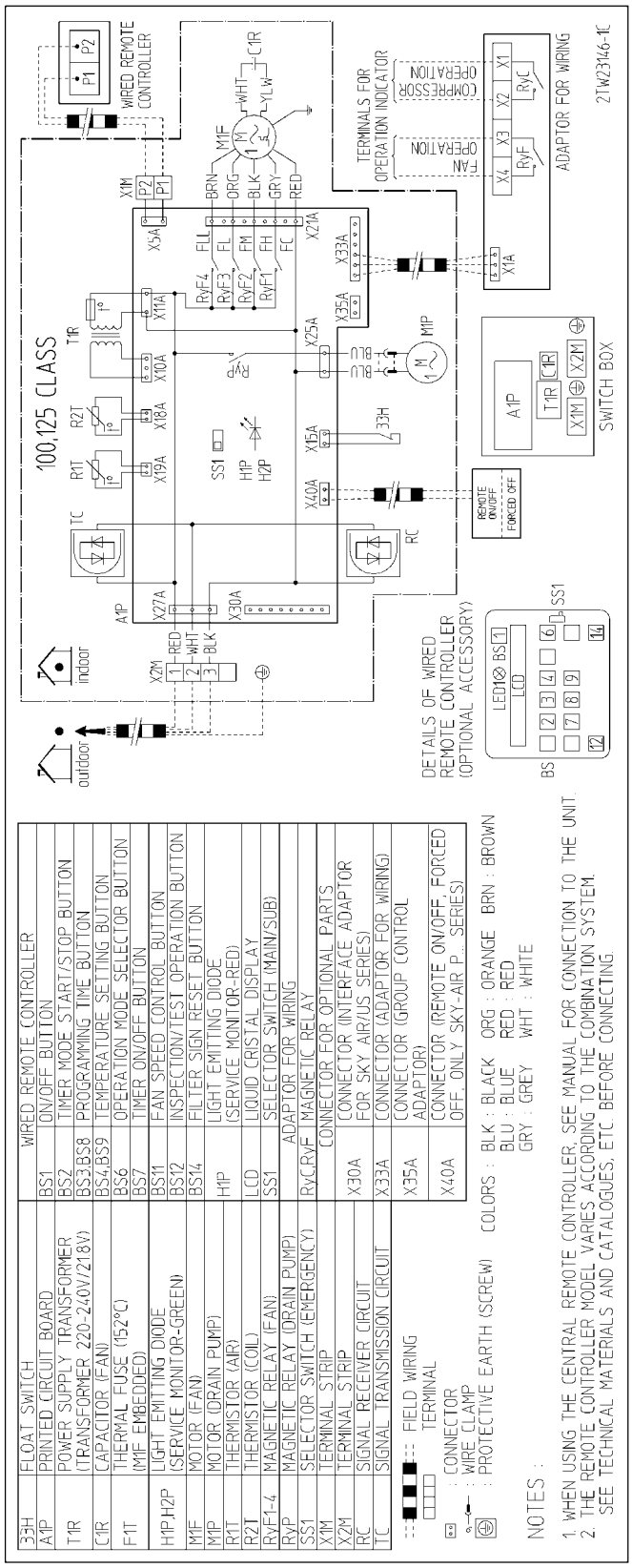
Wiring diagram

The illustration below shows the wiring diagram of the unit.


35,45,60,71 CLASS
WIRED REMOTE CONTROLLER
TERMINALS FOR OPERATION INDICATOR
ADAPTOR FOR WIRING
SWITCH BOX
DETAILS OF WIRED REMOTE CONTROLLER (OPTIONAL ACCESSORY)
indoor
outdoor
2TW23106-1B
33H FLOAT SWITCH
A1P PRINTED CIRCUIT BOARD
T1R POWER SUPPLY TRANSFORMER (TRANSFORMER 220-240V/218V)
C1R CAPACITOR (FAN)
F1T THERMAL FUSE (152°C) (M1F EMBEDDED)
H1P,H2P LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)
M1F MOTOR (FAN)
M1P MOTOR (DRAIN PUMP)
R1T THERMISTOR (AIR)
R2T THERMISTOR (COIL)
RyF1-4 MAGNETIC RELAY (FAN)
RyP MAGNETIC RELAY (DRAIN PUMP)
SS1 SELECTOR SWITCH (EMERGENCY)
X1M TERMINAL STRIP
X2M TERMINAL STRIP
RC SIGNAL RECEIVER CIRCUIT
TC SIGNAL TRANSMISSION CIRCUIT
WIRED REMOTE CONTROLLER
BS1 ON/OFF BUTTON
BS2 TIMER MODE START/STOP BUTTON
BS3,BS8 PROGRAMMING TIME BUTTON
BS4,BS9 TEMPERATURE SETTING BUTTON
BS6 OPERATION MODE SELECTOR BUTTON
BS7 TIMER ON/OFF BUTTON
BS11 FAN SPEED CONTROL BUTTON
BS12 INSPECTION/TEST OPERATION BUTTON
BS14 FILTER SIGN RESET BUTTON
H1P LIGHT EMITTING DIODE (SERVICE MONITOR-RED)
LCD LIQUID CRISTAL DISPLAY
SS1 SELECTOR SWITCH (MAIN/SUB)
ADAPTOR FOR WIRING
RyC,RyF MAGNETIC RELAY
CONNECTOR FOR OPTIONAL PARTS
X30A CONNECTOR (INTERFACE ADAPTOR FOR SKY AIR/US SERIES)
X33A CONNECTOR (ADAPTOR FOR WIRING)
X35A CONNECTOR (GROUP CONTROL ADAPTOR)
X40A CONNECTOR (REMOTE ON/OFF, FORCED OFF, ONLY SKY-AIR P... SERIES)
: FIELD WIRING
: TERMINAL
: CONNECTOR
: WIRE CLAMP
: PROTECTIVE EARTH (SCREW)
COLORS : BLK : BLACK ORG : ORANGE
BLU : BLUE RED : RED
GRY : GREY WHT : WHITE
NOTES :
1. WHEN USING THE CENTRAL REMOTE CONTROLLER, SEE MANUAL FOR CONNECTION TO THE UNIT.
2. THE REMOTE CONTROLLER MODEL VARIES ACCORDING TO THE COMBINATION SYSTEM. SEE TECHNICAL MATERIALS AND CATALOGUES, ETC. BEFORE CONNECTING.

7.3 FHYBP100B7V1 and FHYBP125B7V1

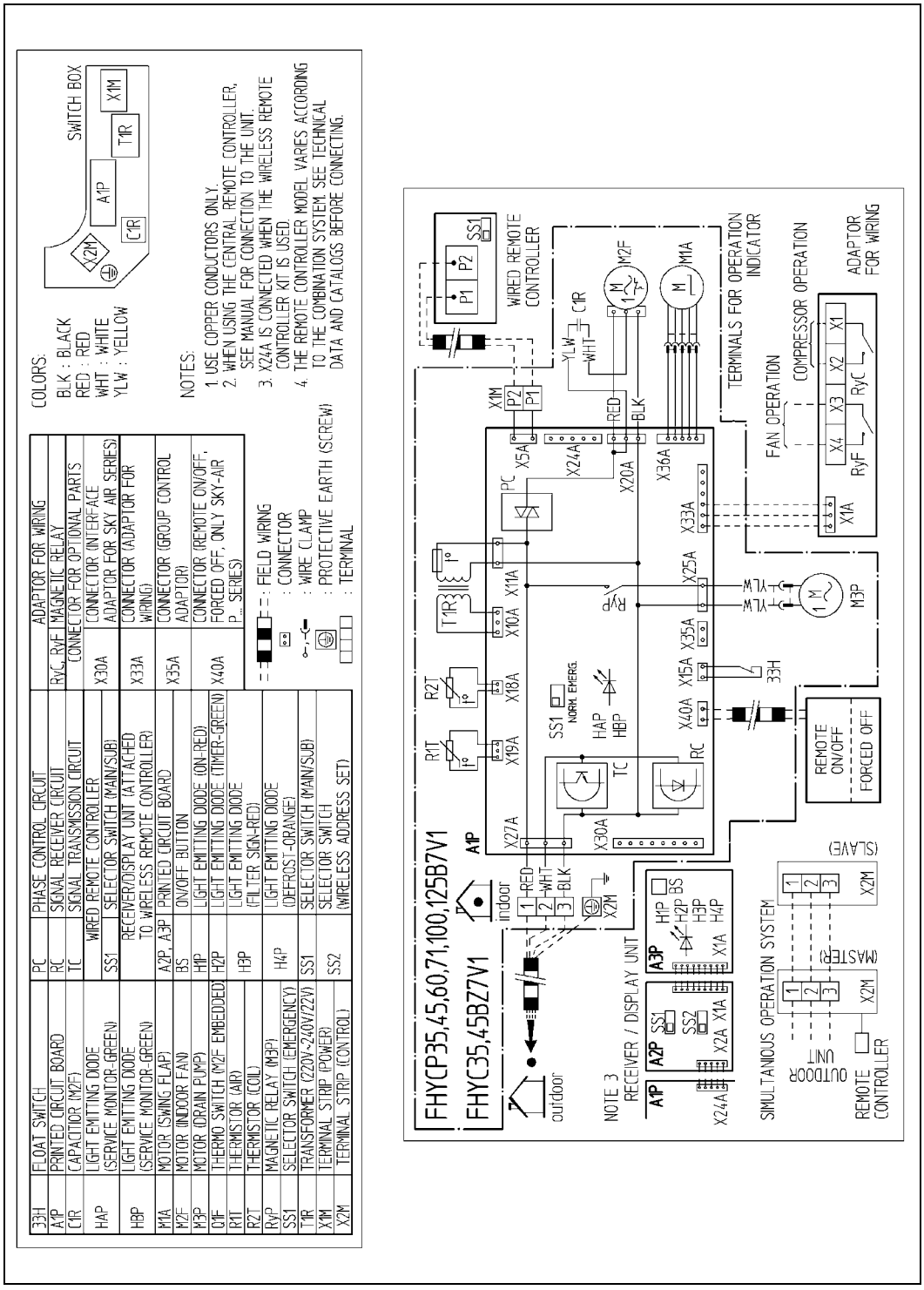
Wiring diagram The illustration below shows the wiring diagram of the unit.


100,125 CLASS
indoor
outdoor
WIRED REMOTE CONTROLLER
TERMINALS FOR OPERATION INDICATOR
ADAPTOR FOR WIRING
SWITCH BOX
DETAILS OF WIRED REMOTE CONTROLLER (OPTIONAL ACCESSORY)
2TW23146-1C
33H FLOAT SWITCH
A1P PRINTED CIRCUIT BOARD
T1R POWER SUPPLY TRANSFORMER (TRANSFORMER 220-240V/218V)
C1R CAPACITOR (FAN)
F1T THERMAL FUSE (152°C) (M1F EMBEDDED)
H1P,H2P LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)
M1F MOTOR (FAN)
M1P MOTOR (DRAIN PUMP)
R1T THERMISTOR (AIR)
R2T THERMISTOR (COIL)
RyF1-4 MAGNETIC RELAY (FAN)
RyP MAGNETIC RELAY (DRAIN PUMP)
SS1 SELECTOR SWITCH (EMERGENCY)
X1M TERMINAL STRIP
X2M TERMINAL STRIP
RC SIGNAL RECEIVER CIRCUIT
TC SIGNAL TRANSMISSION CIRCUIT
WIRED REMOTE CONTROLLER
BS1 ON/OFF BUTTON
BS2 TIMER MODE START/STOP BUTTON
BS3,BS8 PROGRAMMING TIME BUTTON
BS4,BS9 TEMPERATURE SETTING BUTTON
BS6 OPERATION MODE SELECTOR BUTTON
BS7 TIMER ON/OFF BUTTON
BS11 FAN SPEED CONTROL BUTTON
BS12 INSPECTION/TEST OPERATION BUTTON
BS14 FILTER SIGN RESET BUTTON
H1P LIGHT EMITTING DIODE (SERVICE MONITOR-RED)
LCD LIQUID CRISTAL DISPLAY
SS1 SELECTOR SWITCH (MAIN/SUB)
ADAPTOR FOR WIRING
RyC,RyF MAGNETIC RELAY
CONNECTOR FOR OPTIONAL PARTS
X30A CONNECTOR (INTERFACE ADAPTOR FOR SKY AIR/US SERIES)
X33A CONNECTOR (ADAPTOR FOR WIRING)
X35A CONNECTOR (GROUP CONTROL ADAPTOR)
X40A CONNECTOR (REMOTE ON/OFF, FORCED OFF, ONLY SKY-AIR P.. SERIES)
FIELD WIRING
TERMINAL
CONNECTOR
WIRE CLAMP
PROTECTIVE EARTH (SCREW)
COLORS : BLK : BLACK ORG : ORANGE BRN : BROWN
BLU : BLUE RED : RED
GRY : GREY WHT : WHITE
NOTES :
1. WHEN USING THE CENTRAL REMOTE CONTROLLER, SEE MANUAL FOR CONNECTION TO THE UNIT.
2. THE REMOTE CONTROLLER MODEL VARIES ACCORDING TO THE COMBINATION SYSTEM. SEE TECHNICAL MATERIALS AND CATALOGUES, ETC. BEFORE CONNECTING.

7.4 FHYCP35B7V1, FHYCP45B7V1, FHYCP60B7V1, FHYCP71B7V1, FHYCP100B7V1 and FHYCP125B7V1

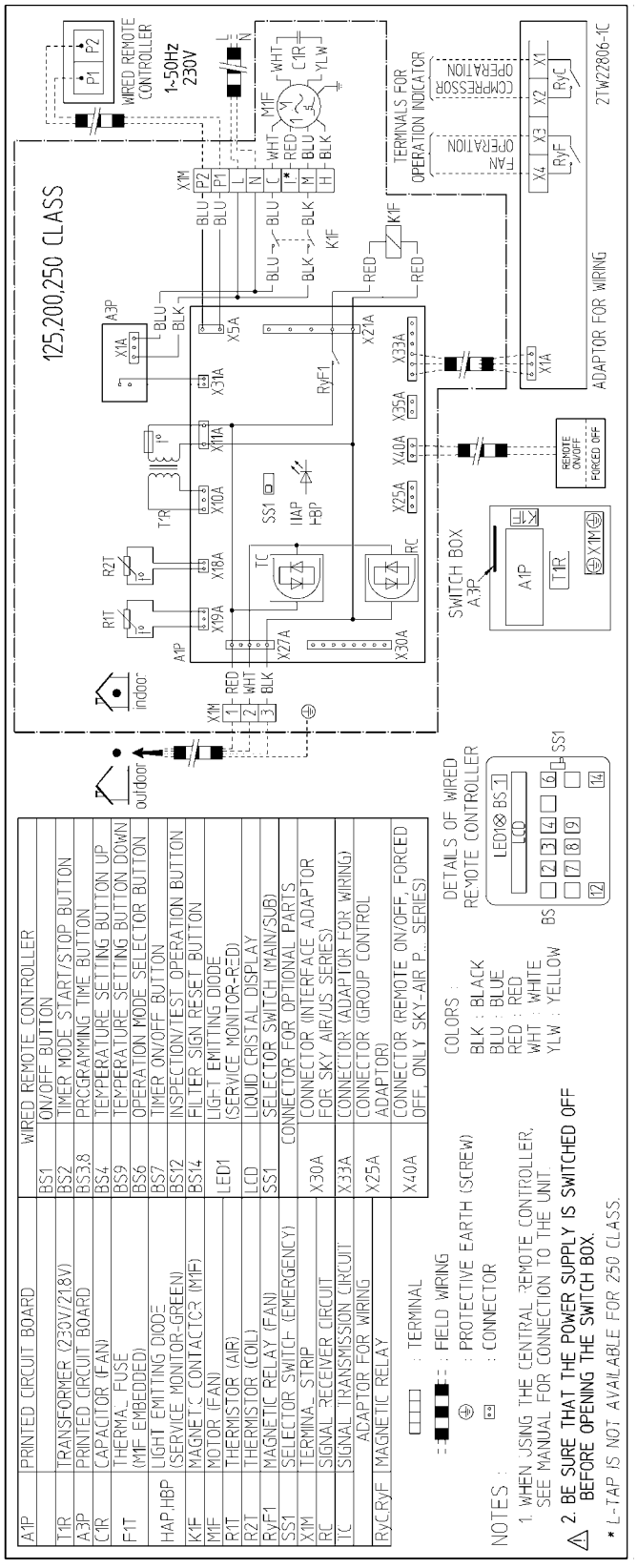
Wiring diagram

The illustration below shows the wiring diagram of the unit.



7.5 FDYP125B7V1

Wiring diagram The illustration below shows the wiring diagram of the unit.

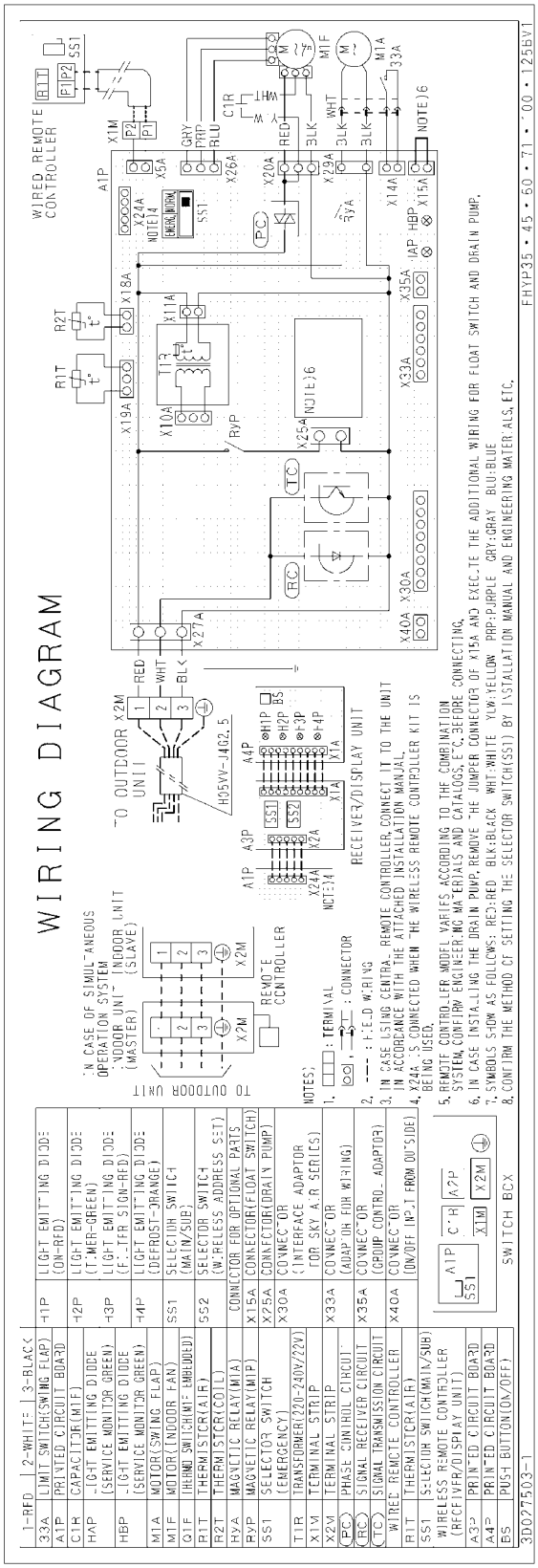


A1P	PRINTED CIRCUIT BOARD		WIRED REMOTE CONTROLLER
		BS1	ON/OFF BUTTON
T1R	TRANSFORMER (230V/218V)	BS2	TIMER MODE START/STOP BUTTON
A3P	PRINTED CIRCUIT BOARD	BS3,8	PROGRAMMING TIME BUTTON
C1R	CAPACITOR (FAN)	BS4	TEMPERATURE SETTING BUTTON UP
F1T	THERMAL FUSE (M1F EMBEDDED)	BS9	TEMPERATURE SETTING BUTTON DOWN
		BS6	OPERATION MODE SELECTOR BUTTON
HAP,HBP	LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)	BS7	TIMER ON/OFF BUTTON
		BS12	INSPECTION/TEST OPERATION BUTTON
K1F	MAGNETIC CONTACTOR (M1F)	BS14	FILTER SIGN RESET BUTTON
M1F	MOTOR (FAN)	LED1	LIGHT EMITTING DIODE (SERVICE MONITOR-RED)
R1T	THERMISTOR (AIR)	LCD	LIQUID CRISTAL DISPLAY
R2T	THERMISTOR (COIL)	SS1	SELECTOR SWITCH (MAIN/SUB)
RyF1	MAGNETIC RELAY (FAN)		CONNECTOR FOR OPTIONAL PARTS
SS1	SELECTOR SWITCH (EMERGENCY)	X30A	CONNECTOR (INTERFACE ADAPTOR FOR SKY AIR/US SERIES)
X1M	TERMINAL STRIP	X33A	CONNECTOR (ADAPTOR FOR WIRING)
RC	SIGNAL RECEIVER CIRCUIT	X25A	CONNECTOR (GROUP CONTROL ADAPTOR)
TC	SIGNAL TRANSMISSION CIRCUIT ADAPTOR FOR WIRING	X40A	CONNECTOR (REMOTE ON/OFF, FORCED OFF, ONLY SKY-AIR P... SERIES)
RyC,RyF	MAGNETIC RELAY		

7.6 FHYP35BV1, FHYP45BV1, FHYP60BV1, FHYP71BV1, FHYP100BV1 and FHYP125BV1

Wiring diagram

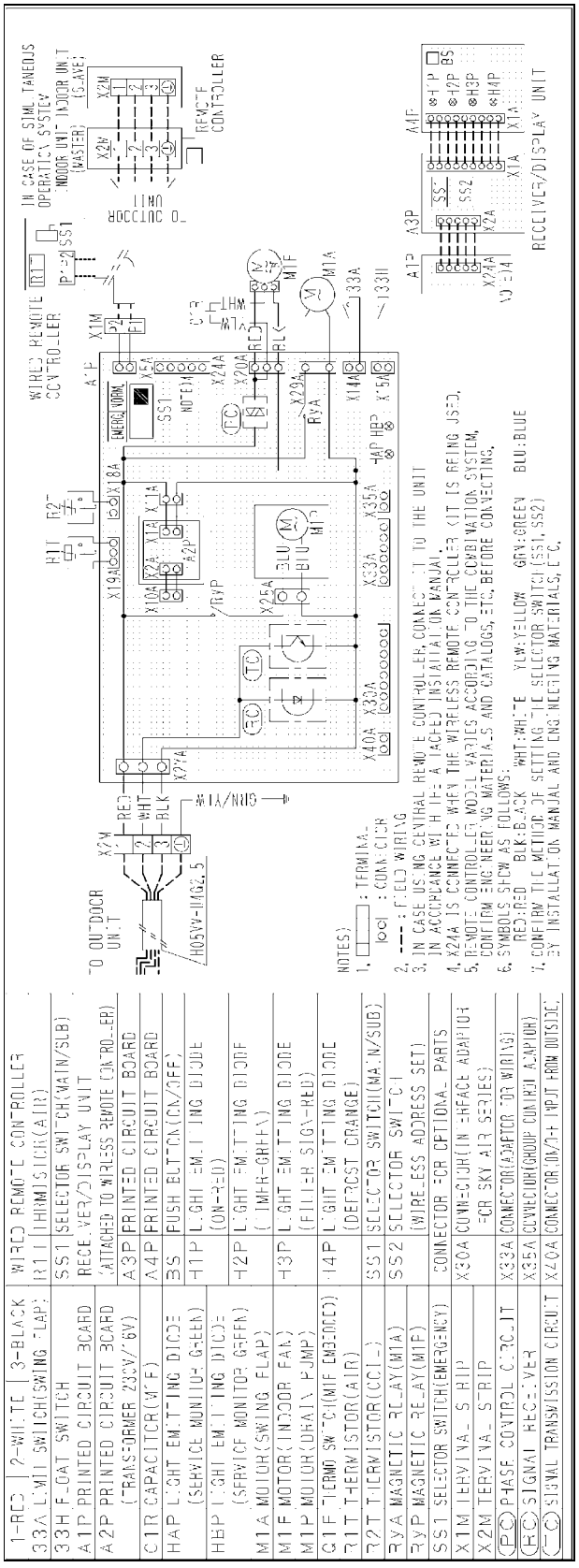
The illustration below shows the wiring diagram of the unit.



7.7 FUYP71BV17, FUYP100BV17 and FUYP125BV17

Wiring diagram

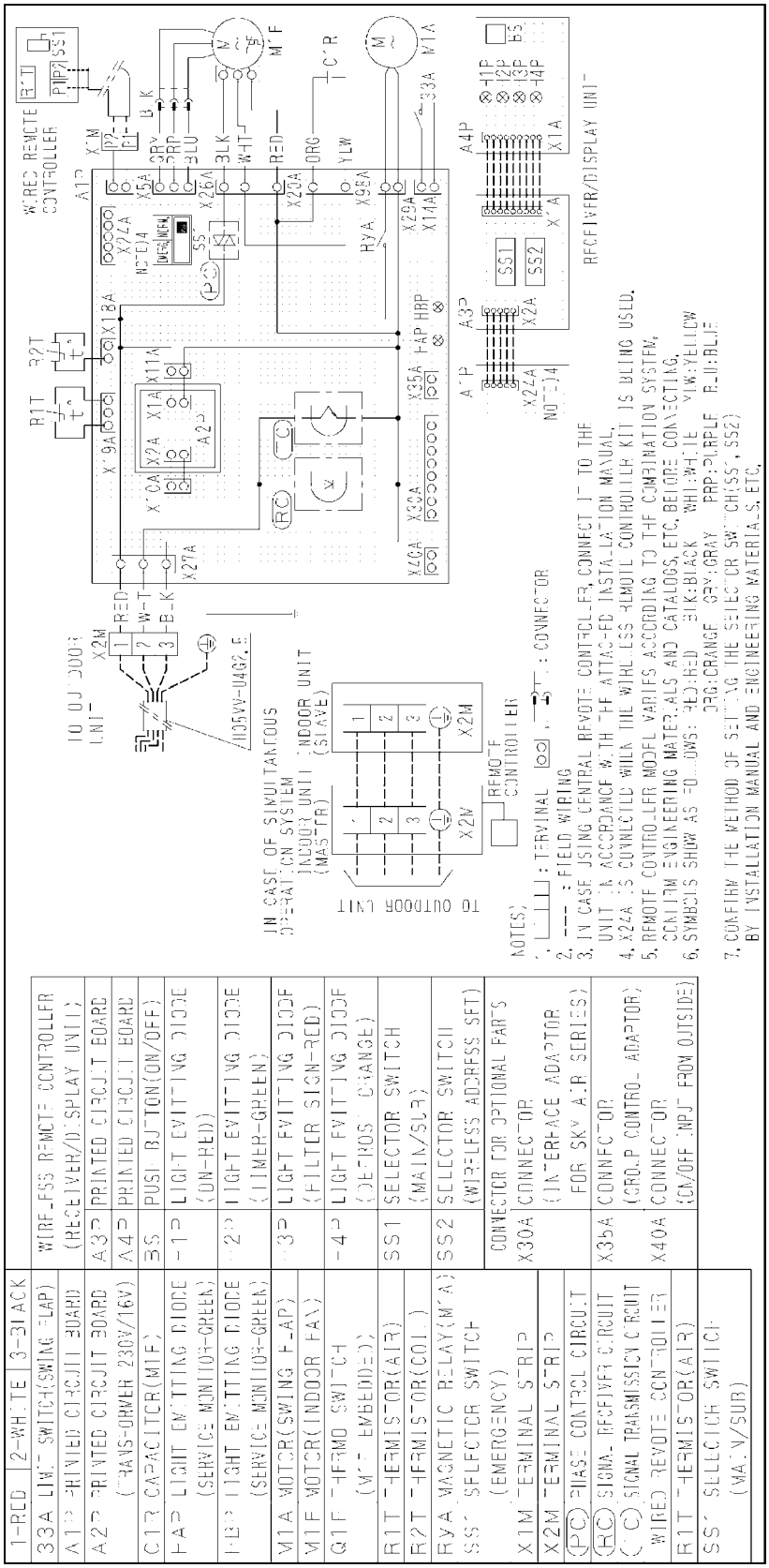
The illustration below shows the wiring diagram of the unit.



7.8 FAYP100BV1

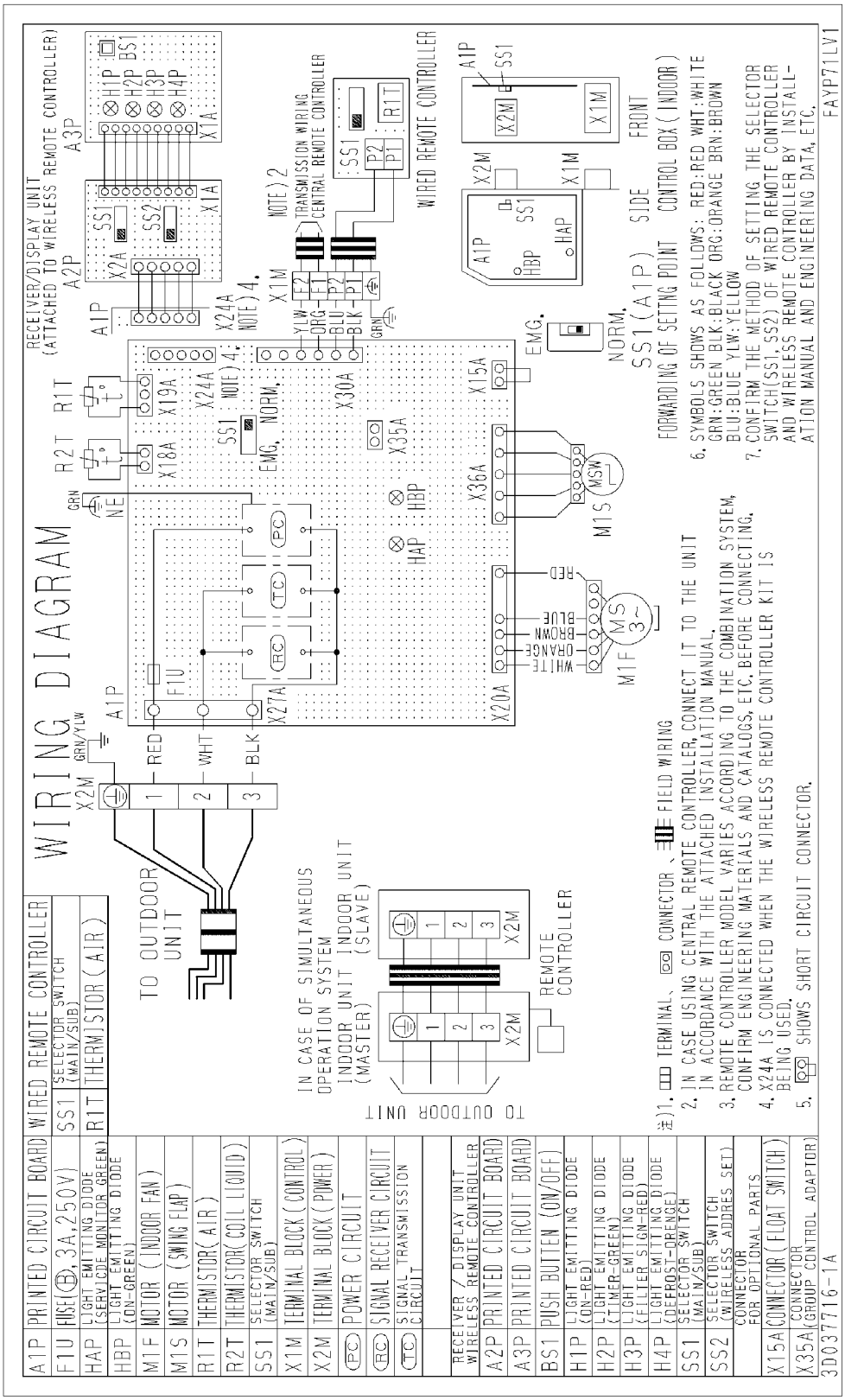
Wiring diagram

The illustration below shows the wiring diagram of the unit.


1-RED 2-WHITE 3-BLACK
33A LIMIT SWITCH(SWING FLAP)
A1P PRINTED CIRCUIT BOARD
A2P PRINTED CIRCUIT BOARD (TRANS-DRIVER 230V/16V)
C1R CAPACITOR(M1F)
HAP LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)
HBP LIGHT EMITTING DIODE (SERVICE MONITOR-GREEN)
M1A MOTOR(SWING FLAP)
M1F MOTOR(INDOOR FAN)
Q1R THERMO SWITCH (WITH EMBEDDED)
R1T THERMISTOR(AIR)
R2T THERMISTOR(COIL)
RyA MAGNETIC RELAY(M1A)
SS1 SELECTOR SWITCH (MAIN/SUB)
SS2 SELECTOR SWITCH (WIRELESS ADDRESS SET)
X1M TERMINAL STRIP
X2M TERMINAL STRIP
(PC) BASE CONTROL CIRCUIT
(RC) SIGNAL TRANSMISSION CIRCUIT (WIRED REMOTE CONTROLLER)
R1T THERMISTOR(AIR)
SS1 SELECTOR SWITCH (MAIN/SUB)
WIRELESS REMOTE CONTROLLER (RECEIVER/DISPLAY UNIT)
PRINTED CIRCUIT BOARD
PUSH BUTTON(ON/OFF)
LIGHT EMITTING DIODE (ON-RED)
LIGHT EMITTING DIODE (TIMER-GREEN)
LIGHT EMITTING DIODE (FILTER SIGN-RED)
LIGHT EMITTING DIODE (DEFROST ORANGE)
SELECTOR SWITCH (MAIN/SUB)
SELECTOR SWITCH (WIRELESS ADDRESS SET)
CONNECTOR FOR OPTIONAL PARTS
X30A CONNECTOR (INTERFACE ADAPTOR FOR SKY AIR SERIES)
X35A CONNECTOR (CRD_P CONTRO_ ADAPTOR)
X40A CONNECTOR (ON/OFF INPUT FROM OUTSIDE)
TO OUTDOOR UNIT
IN CASE OF SIMULTANEOUS OPERATION SYSTEM INDOOR UNIT (MASTER)
INDOOR UNIT (SLAVE)
REMOTE CONTROLLER
NOTES:
1. : TERMINAL , : CONNECTOR
2. --- : FIELD WIRING
3. IN CASE USING CENTRAL REMOTE CONTROLLER, CONNECT IT TO THE UNIT IN ACCORDANCE WITH THE ATTACHED INSTALLATION MANUAL.
4. X24A IS CONNECTED WHEN THE WIRELESS REMOTE CONTROLLER KIT IS BEING USED.
5. REMOTE CONTROLLER MODEL VARIES ACCORDING TO THE COMBINATION SYSTEM, CONFIRM ENGINEERING MATERIALS AND CATALOGS, ETC, BEFORE CONNECTING.
6. SYMBOLS SHOW AS FOLLOWS: BLK:BLACK WHI:WHITE YLW:YELLOW BLU:BLUE GRY:GRAY PRP:PURPLE ORG:ORANGE
7. CONFIRM THE METHOD OF SETTING THE SELECTOR SWITCH (SS1, SS2) BY INSTALLATION MANUAL AND ENGINEERING MATERIALS, ETC.

7.9 FAYP71LV1

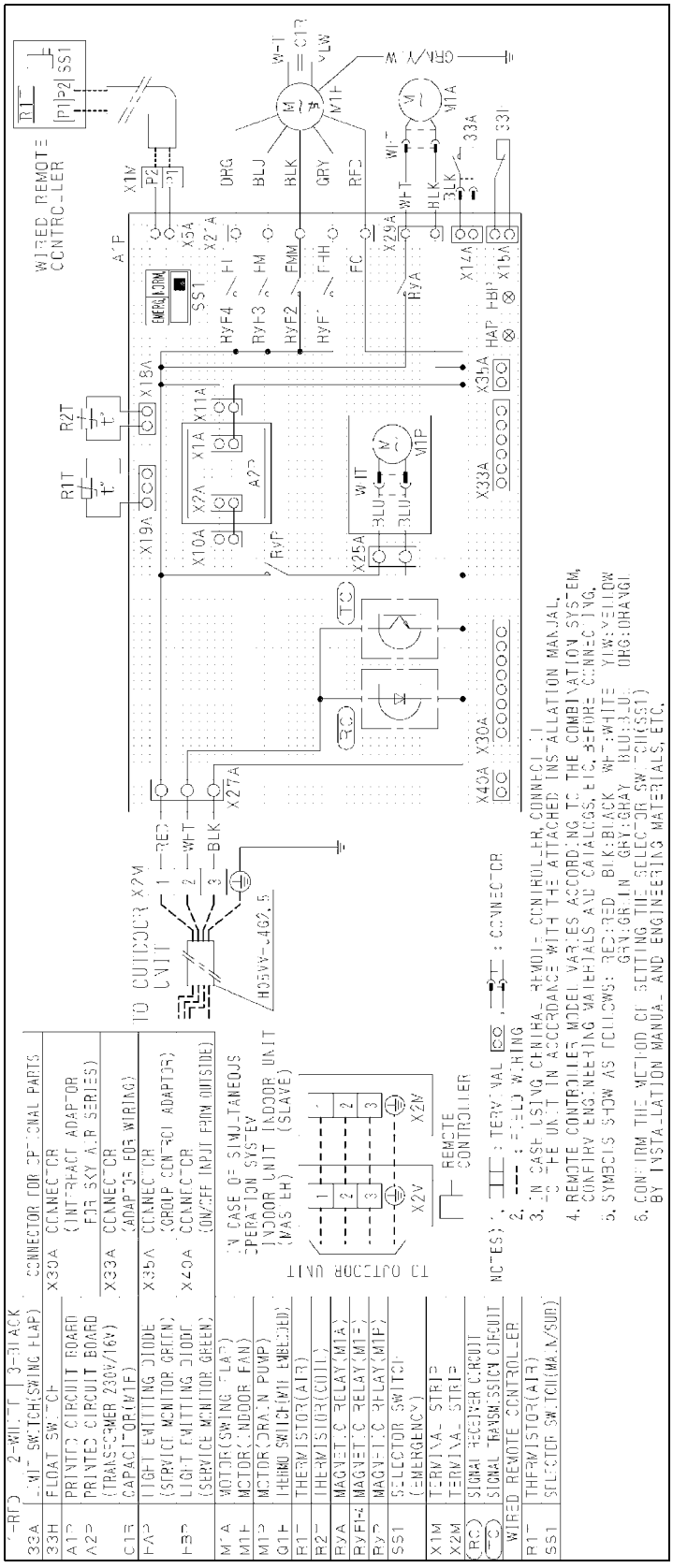
Wiring diagram The illustration below shows the wiring diagram of the unit.



7.10 FHYKP35BV1, FHYKP45BV1, FHYKP60BV1 and FHYKP71BV1

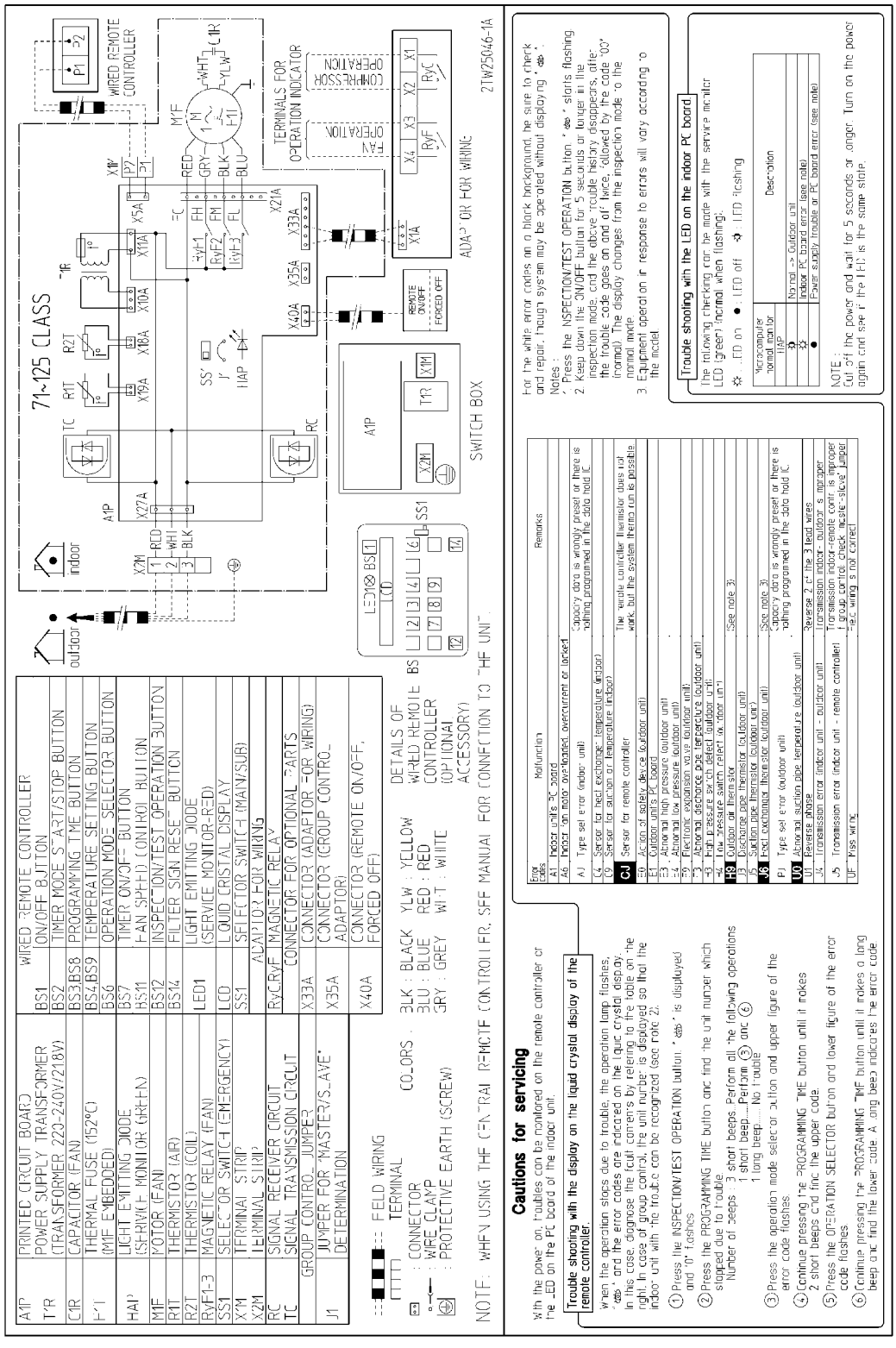
Wiring diagram

The illustration below shows the wiring diagram of the unit.



7.11 FDYMP71~125L7V

Wiring diagram The illustration below shows the wiring diagram of the unit.



8 PCB Layout

8.1 What Is in This Chapter?

Introduction

This chapter contains the following information:

- ➤ It describes which unit uses which PCB types
- ➤ It shows the PCB connectors.

PCB layouts

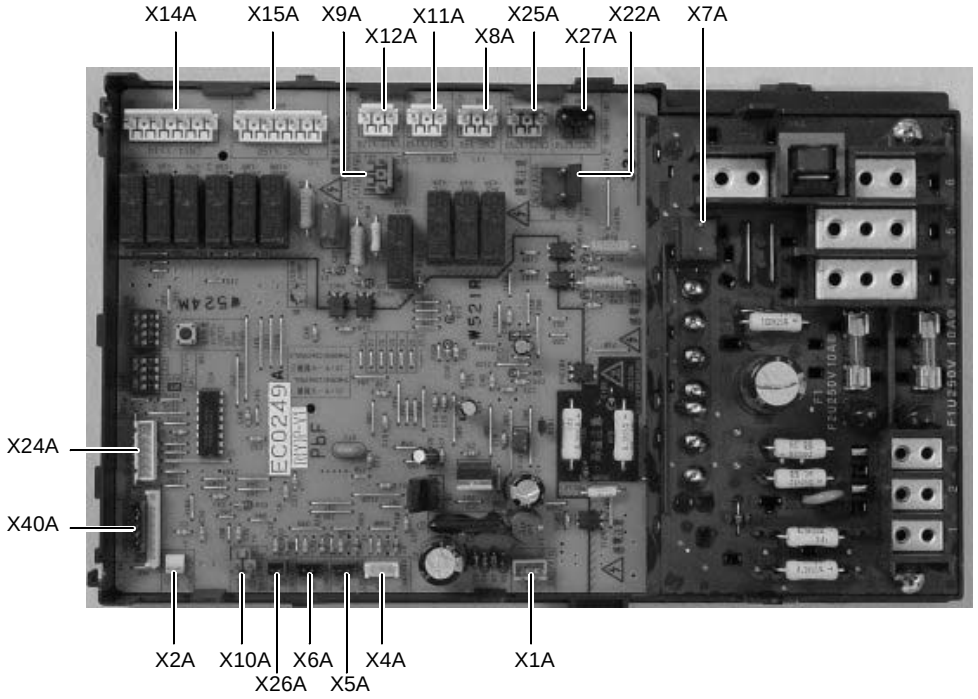
This chapter contains the following PCB layouts:

PCB layout	See page
8.2–R(Y)P71~125L7V1 and R(Y)P71~125L7W1	1–112
8.3–FHYCP35~125B7V1	1–113
8.4–FHYBP35~125B7V1	1–114
8.5–FDYP125~250B7V1	1–115
8.6–FUYP71~125BV1(7)	1–116
8.7–FHYKP35~71BV1	1–117
8.8–FHYP35~125BV1	1–118
8.9–FAYP100BV1	1–119
8.11–FDYMP71~125L7V1	1–121

8.2 R(Y)P71~125L7V1 and R(Y)P71~125L7W1

PCB

The illustration below shows the PCB connectors.



Connectors

The table below describes the PCB connectors.

Connector	Connected to	Description
X2A	—	?
X4A	R1T	Air thermistor
X5A	R2T	Coil thermistor
X6A	R3T	Discharge pipe thermistor
X7A-X1A	T1R	Transformer (220-240V/24,9V)
X8A	K1M	Magnetic contactor (M1C)
X9A	S1PH	High-pressure switch
X10A	S1PL	Low-pressure switch
X11A	Q1M	Thermo switch (M1F)
X12A	Q2M	Thermo switch (M2F)
X14A	M2F	Fan motor 2
X15A	M1F	Fan motor 1
X22A	Y1S	4-way valve
X24A	Y1E	Electronic expansion valves
X25A	E1HC	Crankcase heater
X26A	—	Connector for capacity setting adapter
X27A	Y2S	Solenoid valve
X40A	—	Connector for VRV service checker

8.3 FHYCP35~125B7V1

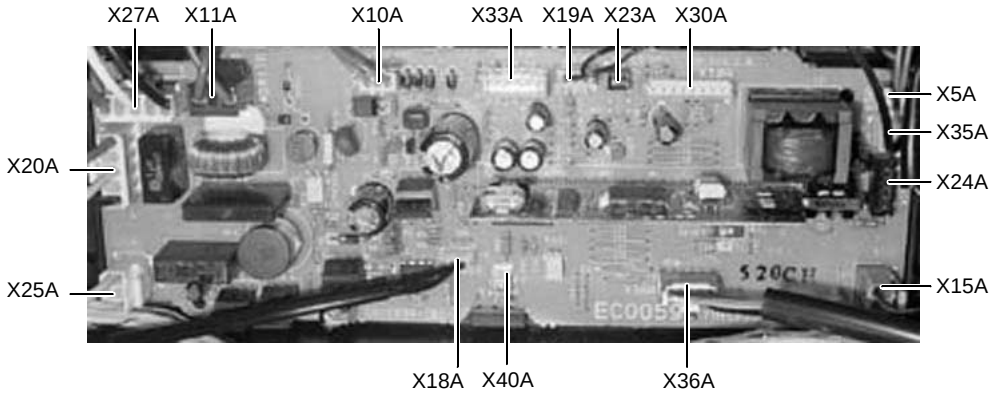
Applicable

The table below contains the applicable PCB number and unit of this PCB type.

PCB No.	Unit
EC0059	FHYCP35/45/60/71/100/125B7V1

PCB

The illustration below shows the PCB connectors.



Connectors

The table below describes the PCB connectors.

Connector	Connected to	Description
X5A	X1M	Terminal strip (P1 and P2)
X10A	T1R	Transformer 230V/22V secundary
X11A	T1R	Transformer 230V/22V primary
X15A	33H	Float switch
X18A	R2T	Heat exchanger thermistor
X19A	R1T	Air thermistor
X20A	M2F	Fan motor
X23A	—	Connector to capacity adaptor
X24A	X2A on A2P	Receiver IR remote controller (option)
X25A	M3P	Drain pump motor
X27A	X2M	Power supply and communication to the outdoor unit
X30A	—	Connector to interface adaptor for Sky Air series (DTA102)
X33A	—	Connector to adaptor for wiring (option KRP1B)
X35A	X1A (KRP4)	Connector to group control adaptor power supply (16 VDC) for optional PCB KRP4
X36A	M1A	Swing flap motor
X40A	—	Connector for EKRORO

8.4 FHYBP35~125B7V1

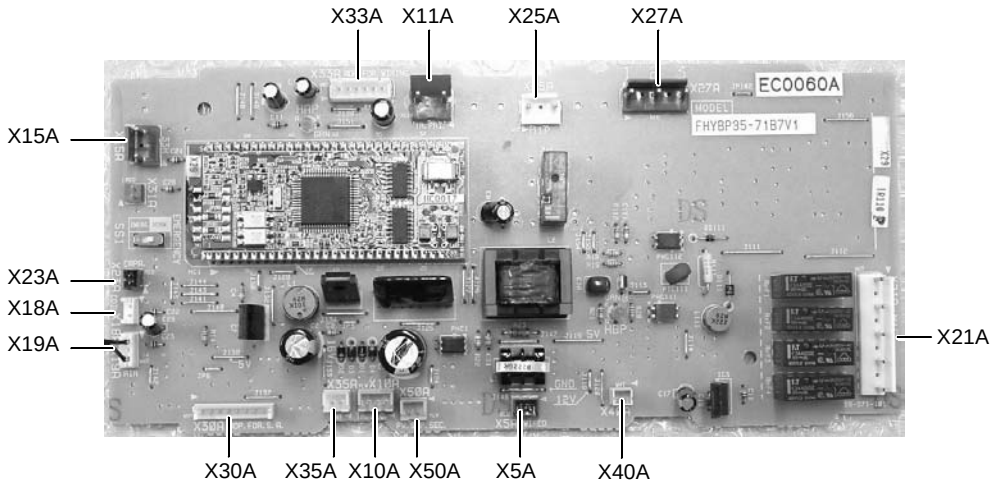
Applicable

The table below contains the applicable PCB numbers and units of this PCB type.

PCB No.	Unit
EC0060A	FHYBP35/45/60/71B7V1
EC0061A (illustrated below)	FHYBP100/125B7V1

PCB

The illustration below shows the PCB connectors.



Connectors

The table below describes the PCB connectors.

Connector	Connected to	Description
X5A	X1M	Terminal strip (P1 and P2)
X10A	T1R	Transformer 230V/22V secundary
X11A	T1R	Transformer 230V/22V primary
X15A	33H	Float switch
X18A	R2T	Heat exchanger thermistor
X19A	R1T	Air thermistor
X21A	M1F	Fan motor
X23A	—	Connector to capacity adaptor
X25A	M3P	Drain pump motor
X27A	X2M	Power supply and communication to the outdoor unit
X30A	—	Connector to interface adaptor for Sky Air series (DTA102)
X33A	—	Connector to adaptor for wiring (option KRP1B)
X35A	X1A (KRP4)	Connector to group control adaptor power supply (16 VDC) for optional PCB KRP4
X40A	—	Connector for EKRORO
X50A	—	In case no transfo is used: Connector to power supply PCB

8.5 FDYP125~250B7V1

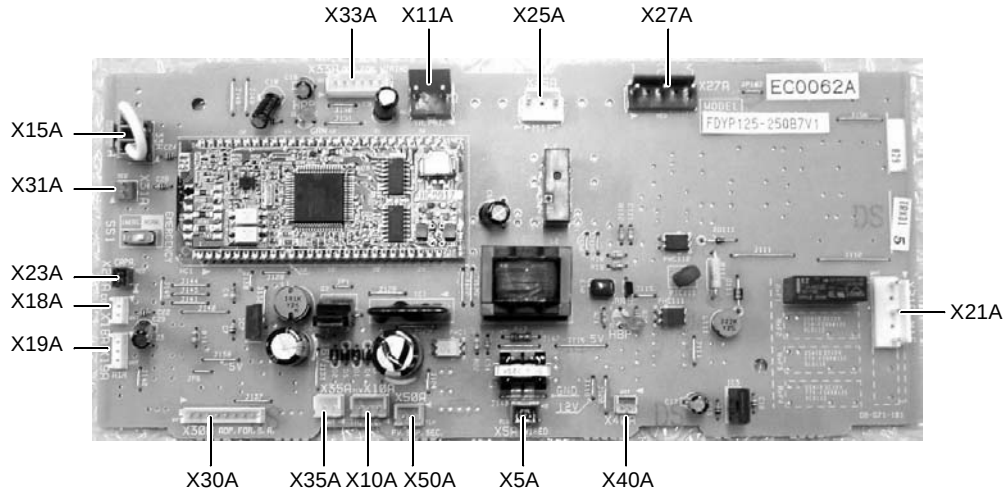
Applicable

The table below contains the applicable PCB number and unit of this PCB type.

PCB No.	Unit
EC0062A (illustrated below)	FDYP125/200/250B7V1

PCB

The illustration below shows the PCB connectors.



Connectors

The table below describes the PCB connectors.

Connector	Connected to	Description
X5A	X1M	Terminal strip (P1 and P2)
X10A	T1R	Transformer 230V/22V secundary
X11A	T1R	Transformer 230V/22V primary
X15A	33H	Float switch
X18A	R2T	Heat exchanger thermistor
X19A	R1T	Air thermistor
X21A	K1F	Magnetic contactor for fan motor (M1F)
X23A	—	Connector to capacity adaptor
X25A	M3P	Drain pump motor
X27A	X2M	Power supply and communication to the outdoor unit
X30A	—	Connector to interface adaptor for Sky Air series (DTA102)
X31A	—	Connector to A3P (interlock PCB)
X33A	—	Connector to adaptor for wiring (option KRP1B)
X35A	X1A (KRP4)	Connector to group control adaptor power supply (16 VDC) for optional PCB KRP4
X40A	—	Connector for EKRORO.
X50A	—	In case no transfo is used: Connector to power supply PCB

8.6 FUYP71~125BV1(7)

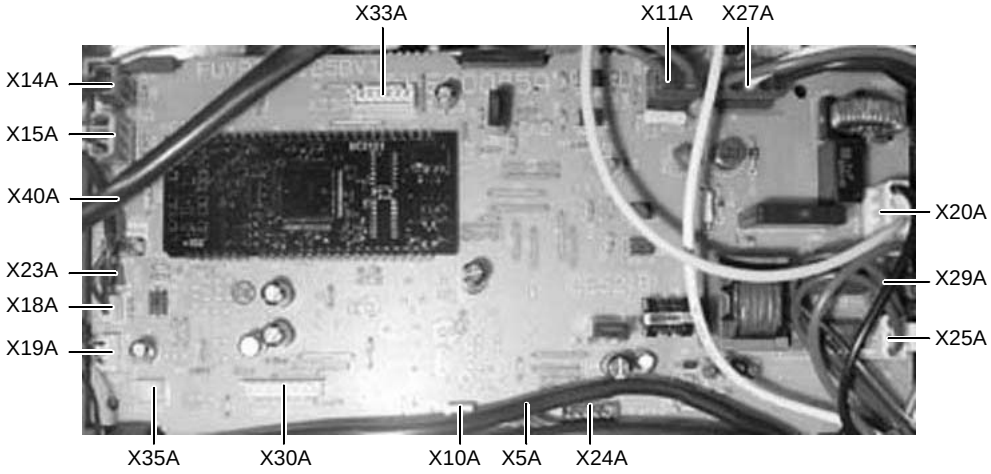
Applicable

The table below contains the applicable PCB number and unit of this PCB type.

PCB No.	Unit
EC0065	FUYP71/100/125BV17

PCB

The illustration below shows the PCB connectors.



Connectors

The table below describes the PCB connectors.

Connector	Connected to	Description
X5A	X1M	Terminal strip (P1 and P2)
X10A	X2A on A2P	PCB (transformer 230 V/16 VDC)
X11A	X1A on A2P	PCB (transformer 230 V/16 VDC)
X14A	33A	Limit switch (swing flap)
X15A	33H	Float switch
X18A	R2T	Heat exchanger thermistor
X19A	R1T	Air thermistor
X20A	M1F	Fan motor
X23A	—	Connector for capacity adaptor
X24A	X2A on A3P	Connected when the wireless remote controller kit is used
X25A	M1P	Drain pump motor
X27A	X2M	Power supply and communication to the outdoor unit
X29A	M1A	Swing flap motor
X30A	—	Connector to interface adaptor for Sky Air series (DTA102)
X33A	—	Connector to adaptor for wiring (option KRP1B)
X35A	X1A (KRP4)	Connector to group control adaptor power supply (16 VDC) for optional PCB KRP4
X40A	—	Connector for EKRORO

8.7 FHYKP35~71BV1

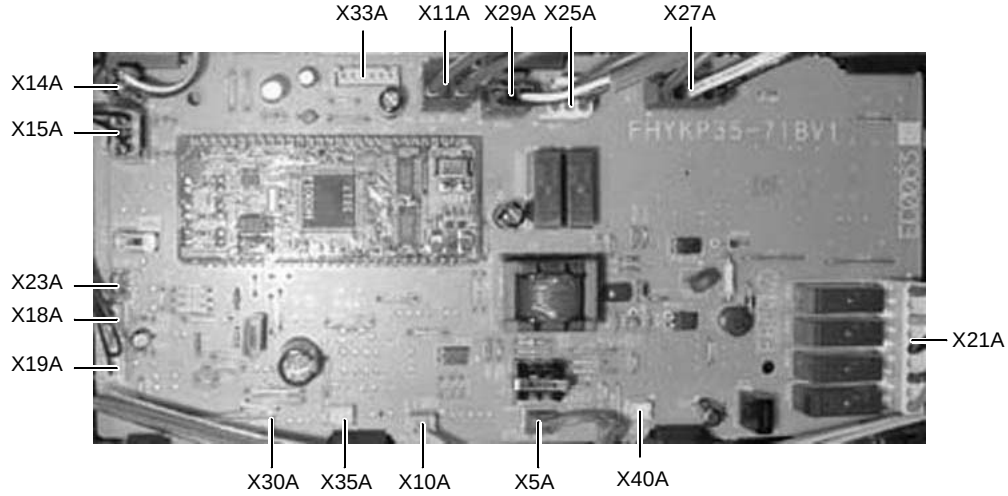
Applicable

The table below contains the applicable PCB number and unit of this PCB type.

PCB No.	Unit
EC0063	FHYKP35/45/60/71BV1

PCB

The illustration below shows the PCB connectors.



Connectors

The table below describes the PCB connectors.

Connector	Connected to	Description
X5A	X1M	Terminal strip (P1 and P2)
X10A	X2A on A2P	PCB (transformer 230 V/16 VDC)
X11A	X1A on A2P	PCB (transformer 230 V/16 VDC)
X14A	33A	Limit switch (swing flap)
X15A	33H	Float switch
X18A	R2T	Heat exchanger thermistor
X19A	R1T	Air thermistor
X21A	—	Fan motor
X23A	—	Connector to capacity adaptor
X25A	M1P	Drain pump motor
X27A	X2M	Power supply and communication to the outdoor unit
X29A	M1A	Swing flap motor
X30A	—	Connector to interface adaptor for Sky Air series (DTA102)
X33A	—	Connector to adaptor for wiring (option KRP1B)
X35A	X1A (KRP4)	Connector to group control adaptor power supply (16 VDC) for optional PCB KRP4
X40A	—	Connector for EKRORO

8.8 FHYP35~125BV1

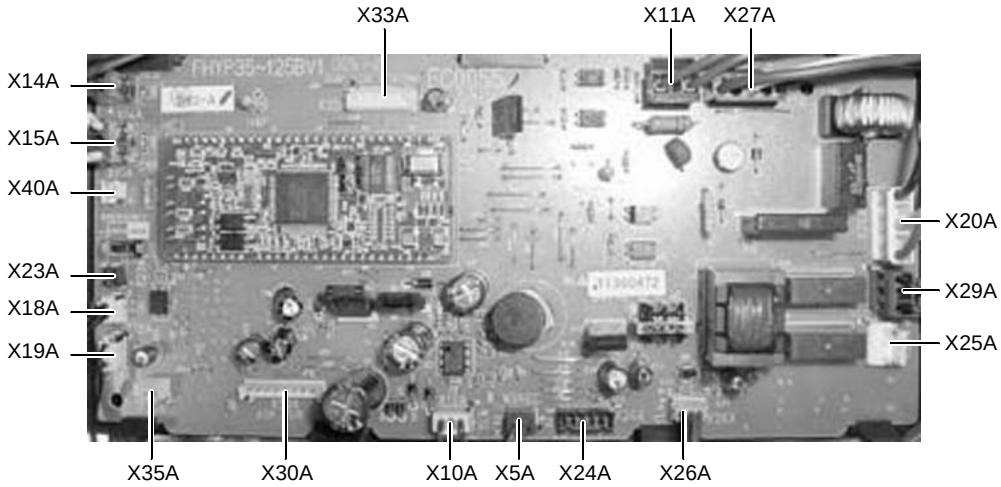
Applicable

The table below contains the applicable PCB number and unit of this PCB type.

PCB No.	Unit
EC0055	FHYP35/45/60/71/100/125BV1

PCB

The illustration below shows the PCB connectors.



Connectors

The table below describes the PCB connectors.

Connector	Connected to	Description
X5A	X1M	Terminal strip (P1 and P2)
X10A	T1R	Transformer 230 V/22 V
X11A	T1R	Ttransformer 230 V/22 V
X14A	33A	Limit switch (swing flap)
X15A	—	When installing the drain pump, remove the jumper connector of X15A and carry out the additional wiring for float switch and drain pump. Connector to float switch
X18A	R2T	Heat exchanger thermistor
X19A	R1T	Air thermistor
X20A	M1F	Fan motor
X23A	—	Connector for capacity adaptor
X24A	X2A on A3P	X24A is connected when the wireless remote controller kit is used
X25A	—	Connector to drain pump motor
X26A	M1F	Fan motor feedback cable
X27A	X2M	Power supply and communication to the outdoor unit
X29A	M1A	Swing flap motor
X30A	—	Connector to interface adaptor for Sky Air series (DTA102)
X33A	—	Connector to adaptor for wiring (option KRP1B)
X35A	X1A (KRP4)	Connector to group control adaptor power supply (16 VDC) for optional PCB KRP4
X40A	—	Connector for EKRORO

8.9 FAYP100BV1

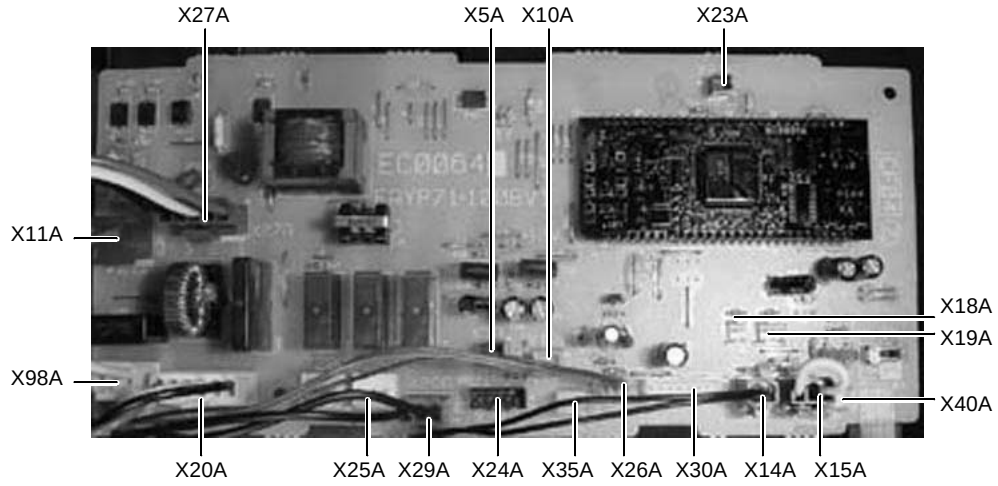
Applicable

The table below contains the applicable PCB number and unit of this PCB type.

PCB No.	Unit
ECOO64	FAYP100BV1

PCB

The illustration below shows the PCB connectors.



Connectors

The table below describes the PCB connectors.

Connector	Connected to	Description
X5A	X1M	Terminal strip (P1 and P2)
X10A	X2A on A2P	Power supply PCB
X11A	X1A on A2P	Power supply PCB
X14A	33A	Limit switch (swing flap)
X15A	—	Float switch
X18A	R2T	Heat exchanger thermistor
X19A	R1T	Air thermistor
X20A	M1F	Fan motor power supply
X23A	—	Connector for capacity adaptor
X24A	X2A on A3P	X24A is connected when the wirelesss remote controller is used
X25A	—	Drain pump motor
X26A	M1F	Fan motor feedback cable
X27A	X2M	Power supply and communication to the outdoor unit
X29A	M1A	Swing flap motor
X30A	—	Connector to interface adaptor for Sky Air series (DTA102)
X40A	—	Connector for EKRORO
X35A	X1A (KRP4)	Connector to group control adaptor power supply (16 VDC) for optional PCB KRP4
X98A	C1R	Capacitor (M1F)

8.10 FAYP71LV1

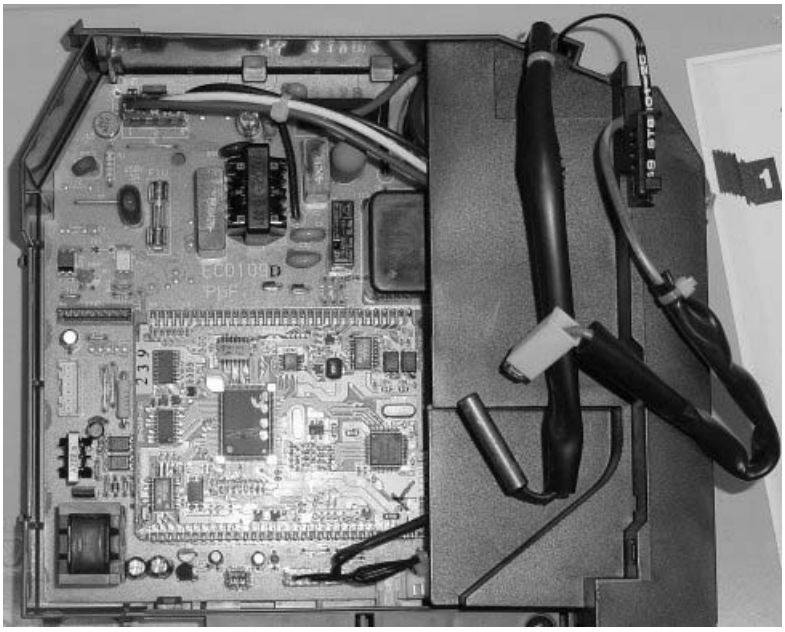
Applicable

The table below contains the applicable PCB number and unit of this PCB type.

PCB No.	Unit
ECO109 set (No X40A on PCB)	FAYP71LV1 see PCB FAYP~L

PCB

The illustration below shows the PCB connectors.



Connectors

The table below describes the PCB connectors.

Connector	Connected to	Description

8.11 FDYMP71~125L7V1

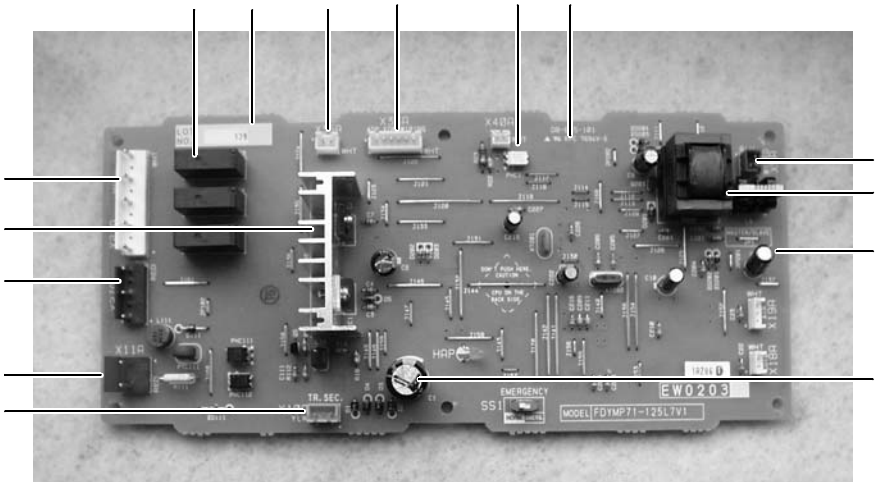
Applicable

The table below contains the applicable PCB number and unit of this PCB type.

PCB No.	Unit
EW203	FDYMP71/100/125L7V1

PCB

The illustration below shows the PCB connectors.



Connectors

The table below describes the PCB connectors.

Connector	Connected to	Description

Part 2
Functional Description

2

What is in this part? This part contains the following chapters:

Chapter	See page
1–General Functionality	2–3
2–Overview of the cooling mode functions	2–27
3–Overview of the heating mode functions	2–39

1 General Functionality

1.1 What Is in This Chapter?

Introduction

This chapter contains information on the functions used to control the system. Understanding these functions is vital when diagnosing a malfunction that is related to the functional control.

Overview

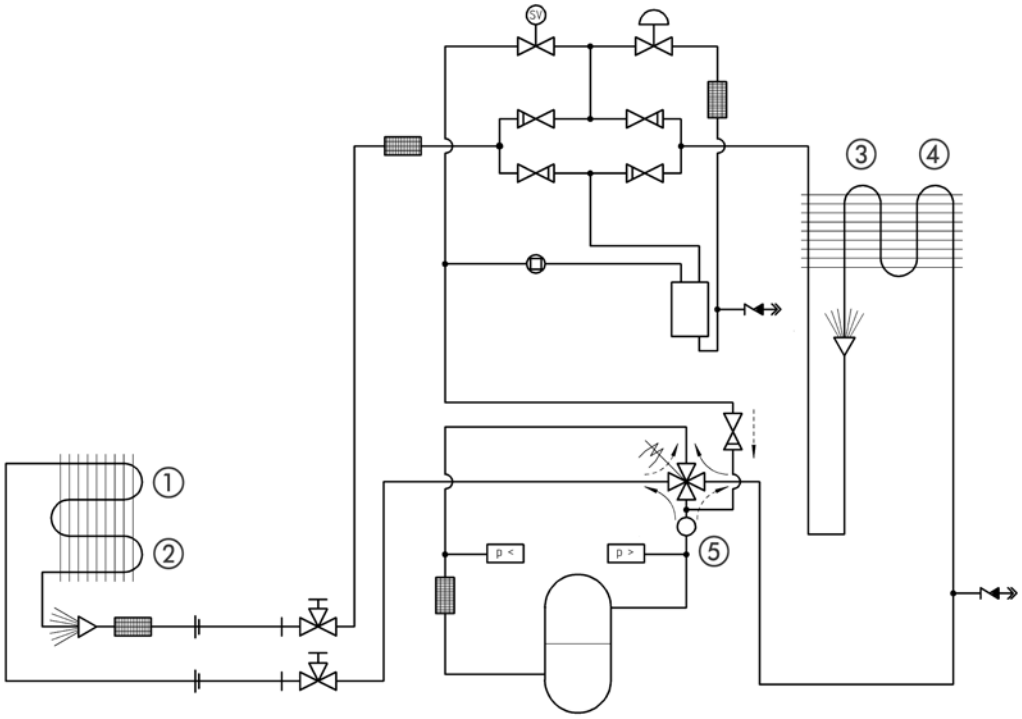
This chapter contains the following topics:

Topic	See page
1.2–Functions of Thermistors	2–4
1.3–Operating Modes and Control Modes	2–6
1.4–Forced Operating Mode (Emergency Operation)	2–7
1.5–Outdoor Unit Identification Function	2–10
1.6–Thermostat Control	2–11
1.7–Forced Thermostat OFF	2–13
1.8–HPS and LPS Function	2–14
1.9–Simulated Operation Function	2–15
1.10–Discharge Pipe Temperature Control	2–16
1.11–Gas Shortage Function	2–17
1.12–Drain Pump Control	2–18
1.13–Fan and Flap Operations	2–20
1.14–Auto-Restart Function	2–21
1.15–Using Conditions for Remote Controller Thermostat	2–22
1.16–Overcurrent Protection Function	2–23
1.17–Expansion Valve Control	2–24

1.2 Functions of Thermistors

Locating the thermistors

The thermistors on the illustration below are used to control the system. This control secures a proper operation and prevents problems of the unit.



Functions of the thermistors

The table below contains the thermistor functions of the large h/p.

Ther-mistor	Location	Wiring symbol	Mode	Function
1	Indoor heat exchanger	R2T	Cooling	➤ Optimise discharge temp. (evap. temp.) ➤ Freeze-up thermostat
			Heating	➤ Optimise discharge temp. (cond. temp.) ➤ Integral capacity calculation (to determine defrost) ➤ Hot start indoor fan ➤ Peak cut-off ➤ Outdoor unit fan control

Ther-mistor	Location	Wiring symbol	Mode	Function
2	Indoor air return	R1T	Cooling	➤ Thermostat control ➤ Start-up control expansion valve and outdoor unit fan ➤ Outdoor fan speed control
			Heating	➤ Thermostat control ➤ Start-up control expansion valve and outdoor unit fan ➤ Integral capacity calculation (to determine defrost) ➤ Peak cut-off
3	Outdoor heat exchanger	R2T	Cooling	➤ Optimise discharge temp. (cond. temp.) ➤ Outdoor fan speed control (O.L.)
			Heating	➤ Optimise discharge temp. (evap. temp.) ➤ Defrost start/stop
4	Outdoor air return	R1T	Cooling	➤ Outdoor fan speed control ➤ Start-up control expansion valve and outdoor unit fan
			Heating	➤ Integral capacity calculation (to determine defrost) ➤ Start-up control expansion valve and outdoor unit fan
5	Discharge pipe com-pressor	R3T	Cooling	➤ Cooling overload ➤ Check refrigerant shortage/too much refrigerant ➤ Expansion valve control
			Heating	➤ Heating overload ➤ Check refrigerant shortage/too much refrigerant ➤ Expansion valve control

1.3 Operating Modes and Control Modes

Operating modes

The two operating modes are:

- ➤ Normal operating mode
- ➤ Forced operating mode.

Control modes

The table below contains the different control modes of the Sky Air B-series air conditioners.

Operating mode	Control mode
Normal operating mode	Cooling
	Dry keep
	Heating
	Defrosting (automatic)
	Freeze-up
	Pump down
	Stop mode
Forced operating mode	Forced cooling
	Forced heating
	Forced defrosting

1.4 Forced Operating Mode (Emergency Operation)

Applicable units

The forced operating mode is applicable for the following units:

Model type	For this unit, you can go to...
RP71-125L	Forced cooling mode
RYP71-125L	➤ Forced cooling mode ➤ Forced heating mode

Purpose

The table below describes the purpose of the forced operating mode.

If...	Then...
➤ Remocon is malfunctioning, or ➤ Indoor PCB is off line, or ➤ Outdoor PCB is off line	Forced operating mode can be used to go to cooling or heating. In forced operating mode, the compressor is forced to operate until the malfunctioning indoor or outdoor PCB is back online.

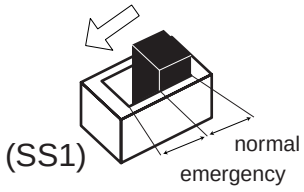
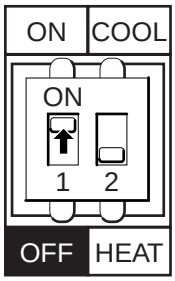
Before switching

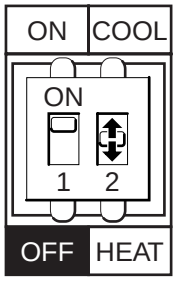
Before moving the switches to emergency operation, make sure to turn OFF the power firstly.

During emergency operation, do not attempt to operate the equipment from the remote controller. The remote controller displays 88 while the emergency operation is active on the indoor unit.

Switching

To switch to forced operating mode, proceed as follows:

Step	Action
1	Turn OFF the power.
2	Switch ON the emergency switch (SS1) on the indoor PCB. 
3	Switch ON the emergency switch on the outdoor PCB.  Switch 2 is not applicable for the c/o units.

Step	Action
4	Switch the emergency switch on the outdoor PCB to the forced mode you prefer.  Switch 2 is not applicable for the c/o units.
5	Turn ON the power.

Before switching back

Before moving the switches back to normal operating mode, make sure to turn OFF the power firstly.

Starting conditions

You can operate the system manually by changing the emergency switch on the indoor and outdoor PCB from “normal” to “emergency”. However, when in emergency operation, the equipment cannot control the temperature.

Make sure to set both indoor and outdoor unit to emergency.

Ending conditions

You can end the emergency operation by changing the emergency switch back to “normal” while the power is OFF.

Emergency operation

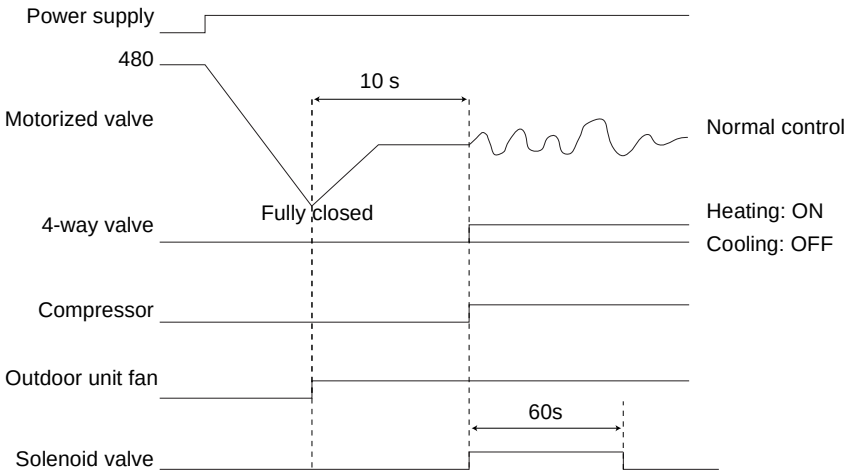
The table below describes what happens when you change the emergency switch to “emergency”.

Changing the emergency switch to “emergency” for the...	Switches ON...
Indoor unit	➤ Indoor fan ➤ Drain pump
Outdoor unit	➤ Compressor ➤ Outdoor fan(s)

Time chart

The time chart below illustrates emergency operation.

- ➤ In cooling, the unit runs for 20 min and then stops for 10 min in order to avoid freeze-up of the indoor coil.
- ➤ During emergency operation, do not attempt to operate the equipment from the remote controller. The remote controller shows 88 while the emergency operation is active on the indoor unit.



Active components

The table below shows when the most important components are active in the different forced operating modes.

Component	Forced cooling	Forced heating	Forced defrosting
Compressor	ON	ON	ON
4-way valve	RYP71-125L: OFF	RYP71-125L: ON	RYP71-125L: OFF
Outdoor unit fan	H fan speed	H fan speed	OFF
Indoor unit fan	H fan speed	H fan speed	H fan speed
Drain pump	ON	OFF	ON

Additional info

To avoid misunderstandings, take the following into account:

- ➤ If the PCB or the motorized valve is malfunctioning, emergency operation cannot be carried out.
- ➤ No signal is transmitted between the indoor and outdoor units and remocon.
- ➤ If a safety device should be activated during emergency operation, all actuators are turned OFF.
- ➤ “Heat” cannot be set for c/o air conditioners.
- ➤ Emergency operation uses (and switches ON) both indoor and outdoor control PCBs. The outdoor control PCB determines the changeover.
- ➤ In heating, defrosting is activated once every hour.

1.5 Outdoor Unit Identification Function

Applicable units

The outdoor unit identification function is applicable for the following units:

Model type	Model name
Cassette	FHYCP and FUYP
Corner	FHYKP
Ceiling	FUYP
Wall	FAYP
Duct	FDYP, FHYBP and FDYMP

Purpose

The purpose of the outdoor unit identification function is to enable the indoor unit to automatically determine which operating mode has to be set in function of the outdoor unit type (c/o or h/p).

Operating modes

The possible operating modes are:

Outdoor unit	Operating modes
h/p	➤ Fan ➤ Cooling ➤ Dry keep ➤ Heating
c/o	➤ Fan ➤ Cooling ➤ Dry keep

Used input

The outdoor unit identification function uses the following inputs:

Input	Connection on indoor PCB	Connection on outdoor PCB
Indoor PCB	TC & RC	—
Outdoor PCB	—	TC &RC

TC: Transmission circuit
RC: Receiving circuit

1.6 Thermostat Control

Applicable units

All units

Purpose

The purpose of thermostat control is to control the compressor operation, by sensing the suction air.

Preventing thermostat OFF conditions

The thermostat control prevents the thermostat from turning OFF in the following conditions:

- ➤ Initial operation for the first 2.5 min, or
- ➤ Defrosting, or
- ➤ Forced operating mode.

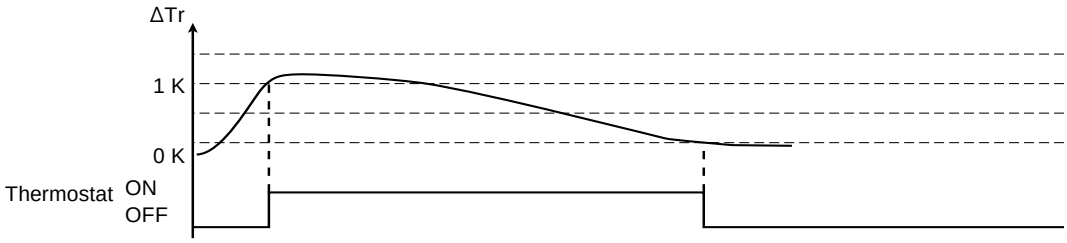
ΔTr

The table below shows how to calculate ΔTr.

In...	ΔTr =	Remark
Cooling	Tr - Ts	➤ Tr = indoor unit suction air temp. ➤ Ts = temp. set by the remote controller
Heating	Ts - Tr	

Time chart

The time chart below illustrates the thermostat control.



Thermostat

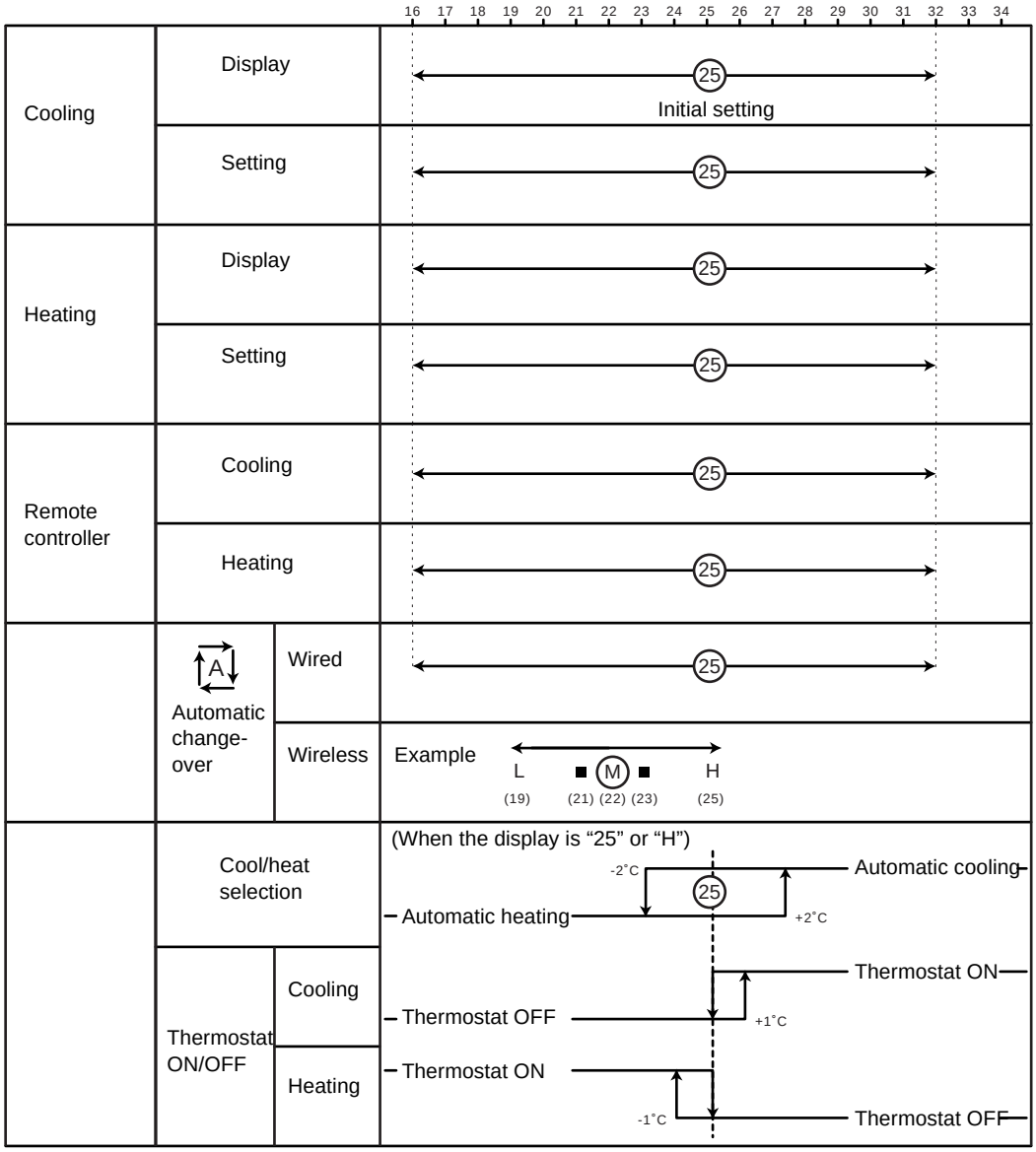
The table below describes when the thermostat turns ON and OFF.

When...	Then the thermostat turns...
➤ ΔTr ≥ 1 K ➤ Guard timer of the compressor has counted down (3 min)	ON
➤ ΔTr ≤ 0 K ➤ Thermostat is ON for min. 2 min	OFF

2

Preset temp. range

The table below illustrates the preset temperature range.



1.7 Forced Thermostat OFF

Applicable units

All indoor units

Purpose

The outdoor unit independently turns its thermostat OFF by means of control other than thermostat OFF commands from the indoor unit.

Method

The table below contains the different conditions for which the thermostat is turned OFF by the outdoor unit.

Thermostat OFF control	Indicator	Starting conditions	Result	Reset
Freeze-up function: See page 2–29.				
Cooling overload	Outdoor heat exchanger temperature Tc	Tc > 63°C for 90 s continuously (min. 60 - max. 66°C for practice function)	The thermostat is turned OFF. Next start, initial opening E.V.: + 70 pulses (cooling) + 80 pulses (heating)	Remocon OFF
Heating overload (peak cut-off)	Indoor heat exchanger temperature Tc	Tc > 62.5°C for 30 s continuously (min. 59.5 - max. 65.5°C for practice function)		
Discharge pipe high temperature Only for R(Y)P71-250L	Discharge pipe temperature T2	Td > 125°C for 20 s continuously		
Td disconnection Only for R(Y)P71-250L	Discharge pipe thermistor T2	Td is determined to be disconnected from the piping 5 min after the compressor starts. Td < 55°C Td < Ta + 10°C ΔTd ≤ 5 K within 5 min after start	Retry 6 x until final error “F3”	

Remarks

- ➤ In case of O.L. operation, O.L. will be activated +1K next time.
- ➤ In case of H.P. activation, O.L. will be activated -1K next time.

Used input

The forced thermostat OFF control uses the following inputs:

Input	Connection on indoor PCB	Connection on outdoor PCB
Outdoor heat exchanger thermistor	—	R2T
Indoor heat exchanger thermistor	R2T	—
Discharge pipe thermistor	—	R3T

Remark

- ➤ In case of twin/triple applications the highest Tc is used.

1.8 HPS and LPS Function

Applicable units

R(Y)P71-125L

Purpose

HPS (High-Pressure Switch)

If the pressure at the discharge side of the compressor becomes abnormally high, the HPS stops the unit automatically in order to prevent it from breaking down.

LPS (Low-Pressure Switch)

If the pressure at the suction side of the compressor becomes abnormally low, the LPS stops the unit automatically in order to prevent it from breaking down.

Method

The table below describes what happens in case of HPS or LPS activation.

If the... is activated	Then...	Remark
HPS	The compressor stops and stands by for 3 min.	If this is activated an additional 6 times from the first detection and before it is turned OFF by the remote controller, the operation stops due to malfunction. 20 sec's are added after each restart.
LPS	The compressor stops and stands by for 3 min. However, depending on the operating conditions, the compressor may not turn OFF.	

Used input

The HPS and LPS detection function uses the following inputs:

Input	Connection on indoor PCB	Connection on outdoor PCB
High-pressure switch	—	X9A
Low-pressure switch	—	X10A

1.9 Simulated Operation Function

Applicable units

➤ R(Y)P71-125L

Purpose

The purpose of the simulated operation function is to avoid the unit from stopping if the heat exchanger thermistor or air thermistor is malfunctioning.

Method

If the air thermistor (for all models listed) or the heat exchanger thermistor is malfunctioning (out of its normal range), simulated operation is carried out while malfunction is displayed on the remote controller. If the air or heat exchanger thermistor becomes normal again, the simulated operation function is interrupted and the normal operation restarts. The malfunctioning error disappears.

Used input

The simulated operation function uses the following inputs:

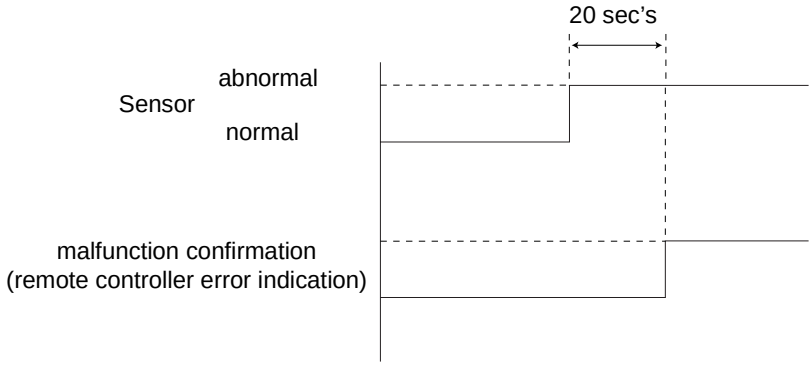
Input	Connection on indoor PCB	Connection on outdoor PCB
Outdoor air thermistor	—	R1T-X4A
Outdoor heat exchanger thermistor	—	R2T-X5A
Indoor air thermistor	R1T-X19A	—
Indoor heat exchanger thermistor	R2T-X18A	—

Parameters

➤ Check sensor valve every 500 msec's.

➤ Abnormal values are sensor values out of below range :

Sensor	Lower than…	Higher than…
Indoor coil and air sensor	-23°C	120°C
Outdoor coil and air sensor	-40°C	127°C



1.10 Discharge Pipe Temperature Control

Applicable units

R(Y)P71-125L

Purpose

The purpose of the discharge pipe temperature control is to prevent a discharge pipe temperature that is too high or too low.

Low temp. starting conditions

The table below contains the low temperature conditions to start the discharge pipe temperature control.

Function	Description	Starting conditions	F3-error occurs if the conditions...
Wet operation	Prevents liquid suction to the compressor.	➤ Change in E.V. opening < 50 pulses ➤ Td < Tc + 10°C	Are met for 15 min continuously.
Thermistor out	Detects if the discharge thermistor is not in the correct position.	➤ Td < 55°C ➤ After start-up + 5 min: - ΔTd ≤ 5 K - Td < Ta + 10°C	Are repeated 6 times.

High temp. starting conditions

The table below contains the high temperature conditions to start the discharge pipe temperature control.

Function / description	Starting conditions	F3-error occurs if the conditions...
Detects too high discharge gas temperatures.	Td ≥ 125°C for 20 s continuously	Are repeated 6 times.

Used input

The discharge pipe temperature control uses the following inputs:

Input	Connection on indoor PCB	Connection on outdoor PCB
Outdoor discharge thermistor	—	R3T-X6A
Outdoor heat exchanger thermistor	—	R2T-X5A
Indoor heat exchanger thermistor	R2T-X18A	—

1.11 Gas Shortage Function

Purpose

The purpose of the gas shortage function is to detect refrigerant shortage before the unit stops due to a discharge temperature that is too high.

Method

When the thermostat is turned OFF due to a discharge pipe temperature that is too high and the E.V. opening is 450 pulses or more, the gas shortage error is activated. However, operation does not stop due to gas shortage.

To check the gas shortage error (U0), see page 3–62.

Used input

The gas shortage function uses the following inputs:

Input	Connection on indoor PCB	Connection on outdoor PCB
Outdoor discharge thermistor	—	R3T-X6A
Outdoor expansion valve	—	Y1E-X24A

1.12 Drain Pump Control

Applicable units

The drain pump control is applicable for the following units:

Model type	Model name
Cassette	FHYCP (standard) and FUYP (standard)
Duct	FHYBP (standard) and FDYP (optional)
Corner	FHYKP (standard)
Ceiling	FHYP (optional)

Purpose

The purpose of the drain pump control is to control the water draining from the drain pan.

Starting conditions

The drain pump control starts the drain pump when one of the following conditions is fulfilled:

- ➤ The cooling operation is activated, or
- ➤ The level in the drain pan becomes abnormally high, or
- ➤ Freeze-up prevention is detected in cooling operation.

Method

The float switch opens because an abnormal drain level is detected in the drain pan.

The table below describes the activation at open float switch.

Situation	Activation at open float switch
Thermostat ON	1. The thermostat is immediately turned OFF. 2. The drain pump continues to operate for minimum 10 min. 3. If the float switch closes again within 80 s, cooling can restart after the 10 min recovery.
Thermostat OFF	1. The thermostat stays forced OFF. 2. The drain pump starts to operate for minimum 10 min. 3. If the float switch closes again within 80 s, cooling can restart after the 10 min recovery.
Float switch opens each time the drain pump stops.	After five retrials the error code " RF " flashes on the remote controller.

Used input

The drain pump control uses the following inputs:

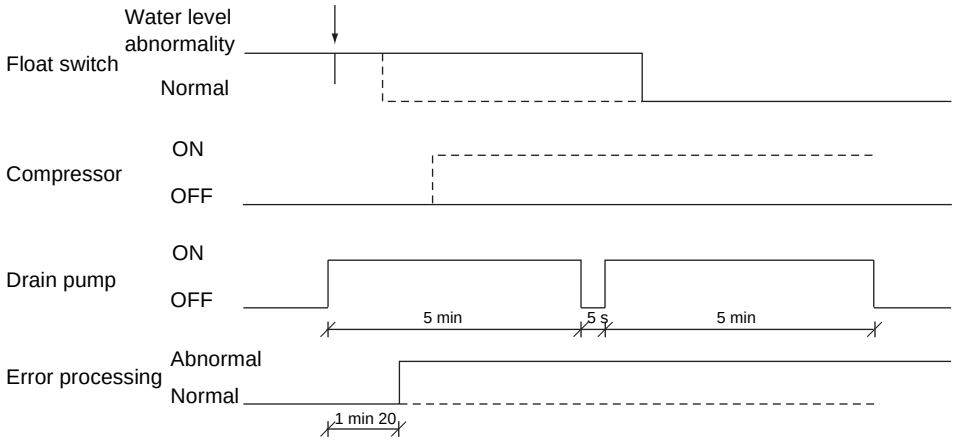
Input	Connection on indoor PCB	Connection on outdoor PCB
Float switch (33H)	X15A	—
Magnetic relay drain pump (RyP)	X25A	—

Detection system

All applicable units use a drain pan water level detection system of the float type.

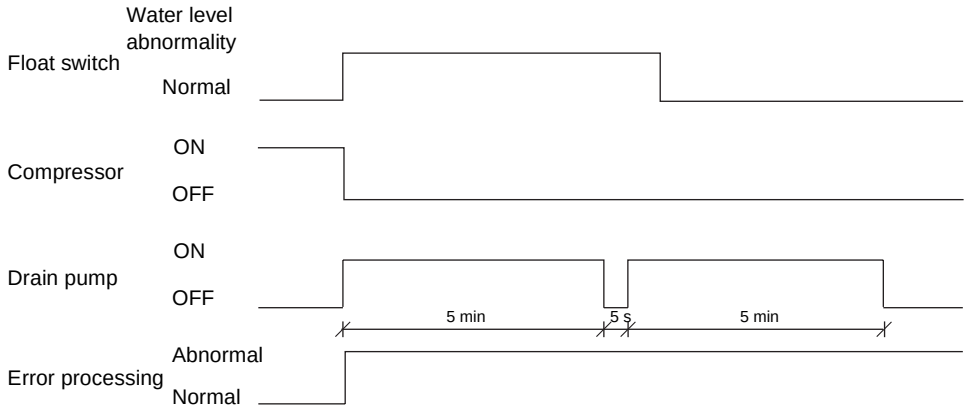
Float type: During start-up

The time chart below illustrates the drain pump control during start-up.



Float type: During operation (compr. ON)

The time chart below illustrates the drain pump control during start-up.



1.13 Fan and Flap Operations

Heating operation The table below contains the fan and flap operations.

Function	In...	Fan	Flap (FHYCP, FHYKP and FHYP)	Flap (FAYP)	Remote controller indication
Hot start after defrost	Swing operation	OFF	Horizontal	Horizontal	Swing
	Airflow direction setting				Set position
Defrost	Swing operation				Swing
	Airflow direction setting				Set position
Thermostat OFF	Swing operation	LL			Swing
	Airflow direction setting				Set position
Hot start after thermostat OFF (cold air prevention)	Swing operation				Swing
	Airflow direction setting				Set position
Stop (error)	Swing operation	OFF		Fully closed (horizontal)	—
	Airflow direction setting			Fully closed	
Overload thermostat OFF	Swing operation	LL		Horizontal	Swing
	Airflow direction setting				Set position

Cooling operation The table below contains the fan and flap operations.

Function	In...	Fan	Flap (FHYCP, FHYKP and FHYP)	Flap (FAYP)	Remote controller indication
Thermostat ON (microcomputer controlled dry keep mode)	Swing operation	L	Swing	Swing	Swing
	Airflow direction setting		Setting	Setting	Set position
Thermostat OFF (microcomputer controlled dry keep mode)	Swing operation	OFF	Horizontal	Horizontal	Swing
	Airflow direction setting		Setting	Setting	Set position
Thermostat OFF (cooling)	Swing operation	Setting	Horizontal	Horizontal	Swing
	Airflow direction setting		Setting	Setting	Set position
Stop (error)	Swing operation	OFF	Horizontal	Downward (horizontal)	—
	Airflow direction setting		Setting	Downward	
Freeze-up prevention in microcomputer controlled dry keep mode (including cooling operation)	Swing operation	L	Horizontal	Horizontal	Swing
	Airflow direction setting		Setting	Setting	Set position

1.14 Auto-Restart Function

Applicable units

All units

Purpose

The purpose of the auto-restart function is to resume the same operating mode after the power was turned OFF as when the unit was operating.

Turning OFF power

When you have to turn OFF the power supply in order to carry out maintenance, make sure to turn the remote controller's ON/OFF switch OFF firstly.

If you turn OFF the power supply while the remote controller's ON/OFF switch is still ON, the "auto-restart function" automatically starts the indoor fan immediately or the outdoor unit fan starts automatically 3 min after the power supply is turned back ON.

1.15 Using Conditions for Remote Controller Thermostat

Applicable units

All units

Wired remote controllers

The remote controller thermostat is only available in wired remote controls.

Conditions in which the rem. contr. thermostat is not used

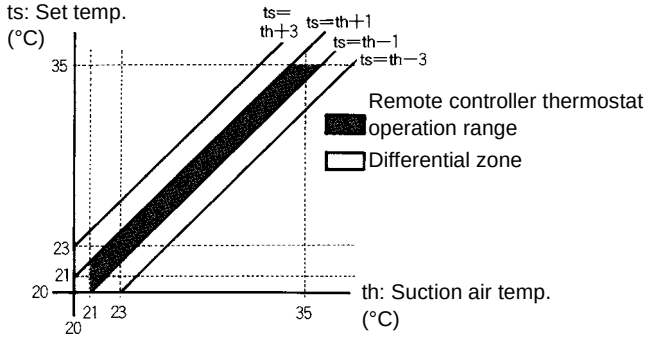
Even when the “use remote controller thermostat” is selected in service mode, the remote controller thermostat is not always used.

The table below contains the conditions in which the remote controller thermostat is not used.

Condition	The remote controller thermostat is not used when...	Except...
1	The remote controller thermostat malfunctions.	—
2	Group control is used	—
3	The set temp./air suction temp. combination is out of range. See further in this section.	When the automatic operation is selected. If so, the remote controller can be used.

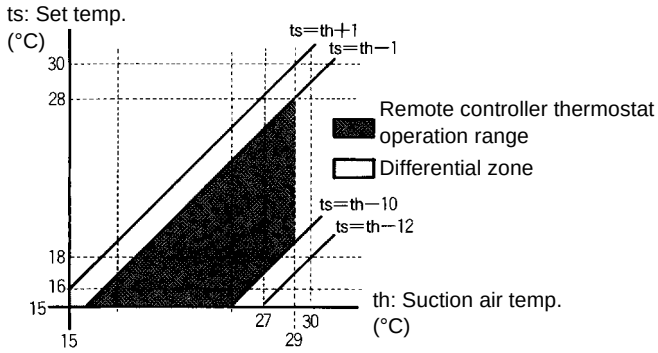
Cooling

The diagram below shows the operation range of the set temperature/air suction temperature combination.



Heating

The diagram below shows the operation range of the set temperature/air suction temperature combination.



1.16 Overcurrent Protection Function

Purpose

The purpose of the “Overcurrent Protection Function” is to protect the unit against excessive current drains.

Method

If the Current Transducer detects an overcurrent, the unit will trip on E6 error after 4 times detection.

Unit	Compressor	Current (A)
RYP71L7V1	JT90FA-V1N	25.3
RYP71L7W1	JT90FA-YE	11.5
RYP100L7V1	JT125FA-V1N	38
RYP100L7W1	JT125FA-YE	11.5
RYP125L7W1	JT160FA-YE	15

“J2” will be displayed if the overcurrent detection sensor has a malfunction.

1.17 Expansion Valve Control

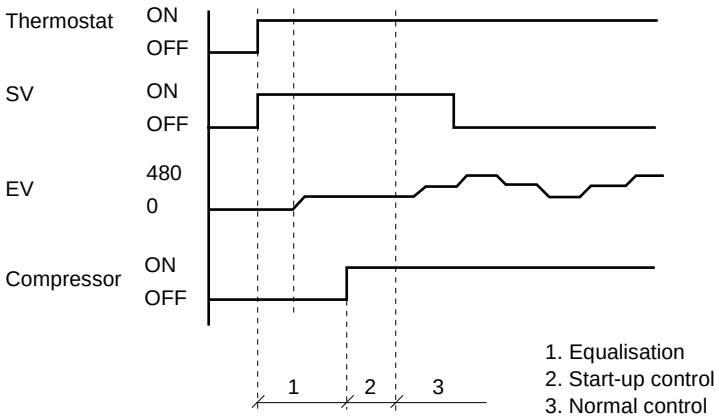
Applicable units

R(Y)P71-125L

Start-up control

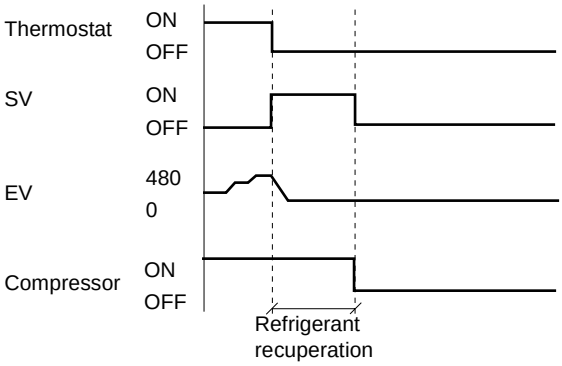
When the compressor starts, a pump down operation is carried out in order to avoid liquid pumping. The liquid receiver fills up and a minimum refrigerant amount is passed to the compressor. This minimum refrigerant amount is required to avoid discharge pipe temperatures that are too high.

The opening degree of the expansion valve depends on the start-up number. If the first start-up fails, the opening degree of the following start-up is adapted by the self-learning function.



Pump down residual operation

The unit conducts a pump down residual operation after each compressor stop command. The purpose of this function is to collect the refrigerant in the liquid receiver in order to prevent refrigerant from remaining in the indoor heat exchanger.



Initial opening degree

The initial opening degree of the outdoor expansion valve depends on the indoor and outdoor air temperature. The calculation of the opening degree is made at a thermostat ON and at the end of a defrosting cycle.

Opening degree: Self-learning function

When the system was stopped due to abnormal suction or discharge pressure, or due to a discharge temperature that is too high, the expansion valve control tries to avoid the same breakdown. The expansion valve increases the previous opening degree with 70 (in cooling mode) or 80 (in heating mode) pulses at the next start-up.

There are maximum five start-up attempts. When the compressor stops again after the fifth start-up, something is wrong with the unit and a unit check is necessary. The relevant error code appears on the remote controller.

Normal control

The optimum discharge pipe temperature is calculated based on:

- ➤ Indoor and outdoor heat exchanger temperature
- ➤ Actual discharge pipe temperature
- ➤ Outdoor ambient temperature.

The expansion valve is controlled in order for the discharge temperature to approach the optimum temperature.

Used input

The motor operated valve control uses the following inputs:

Input	Connection on indoor PCB	Connection on outdoor PCB
Outdoor thermistor	—	R1T
Outdoor heat exchanger thermistor	—	R2T
Discharge pipe thermistor	—	R3T
Indoor heat exchanger thermistor	R2T	—

2

2 Overview of the cooling mode functions

2.1 What Is in This Chapter?

Introduction

This chapter contains information on the functions used to control the system when the system is in cooling mode. Understanding these functions is vital when diagnosing a malfunction that is related to the functional control.

Overview

This chapter contains the following topics:

Topic	See page
2.2–Dry Keep Mode	2–28
2.3–Freeze-Up Function	2–29
2.4–Outdoor Fan Starting Control in Cooling or Dry Keep Mode	2–33
2.5–Normal Outdoor Fan Control in Cooling Operation	2–35
2.6–High Pressure Protection Control in Cooling Operation	2–37
2.7–Condensation Avoidance Control	2–38

2.2 Dry Keep Mode

Applicable units

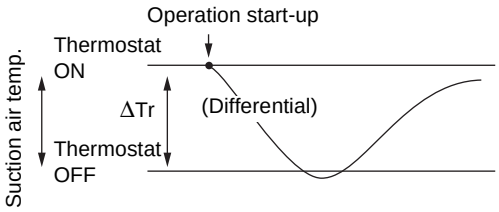
All units

Purpose

The purpose of the dry keep mode is to remove humidity while maintaining the room temperature.

Method

The points of thermostat ON or OFF are determined according to the suction air temperature at start-up of the unit operation. The set temperature and flow rate are not displayed on the remote controller.



Thermostat

When dry keep is selected on the remote controller, the unit detects the ambient temperature. This ambient temperature is then the setpoint. The thermostat is turned OFF when the air return temperature drops below this setpoint. The thermostat is turned ON in one of the following conditions:

Suction air temperature	Thermostat ON	ΔTr
Tr ≥ 24°C	Tr	1.5°C
18°C ≤ Tr < 24°C	Tr	1.0°C
Tr < 18°C	18°C	

Operation condition

The table below describes the operation condition.

Compressor condition	ON	OFF
Fan speed	L	OFF
Flap angle	Set angle	PoO
Air flow direction set with remote controller		Setting indication

Used input

The dry keep function uses the following inputs:

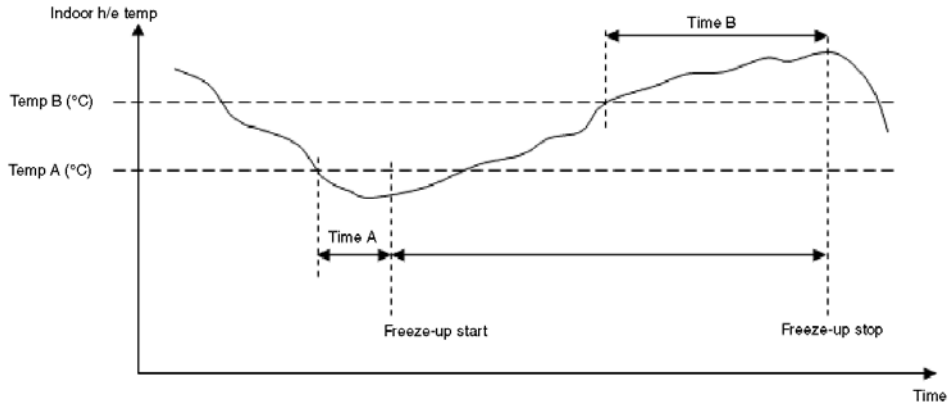
Input	Connection on indoor PCB	Connection on outdoor PCB
indoor air temperature R1T	X19A	—

2.3 Freeze-Up Function

Starting conditions

In order to avoid formation of ice on the indoor heat exchanger in cooling and dry mode, the system automatically starts up a freeze-up cycle when some specific conditions are fulfilled.

Graph



Field settings

The table below contains the values of A, B, C, D, E and F in function of the DIP switch settings on the outdoor PCB.

Position of DIP switch		Activation decided by…	Trigger conditions	Remarks
DSW 2-3	DSW 2-4			
OFF	OFF	Outdoor or Indoor	Conditions 1	Factory set conditions.
ON	(*)	Indoor only	Conditions 2	For use with EKRPER
OFF	ON	Outdoor only	Conditions 3	Increased capacity for technical room applications. Only to be used in low latent heat applications (applications with low relative humidity)

(*) Position of DSW2-4 irrelevant

Conditions 1

Factory settings

DSW 2-3	DSW 2-4	Start Conditions (OR)	Stop Conditions
OFF	OFF	➤ Freeze-up start signal received from indoor unit· ➤ Te ≤ -1°C for 25 min accumulated compressor operation time· ➤ Te ≤ A°C for 1 minute continuous after = 8 minutes continuous compressor operation time· ➤ Te ≤ -1°C for 1 minute after ≥ 20 minutes continuous compressor operation time	➤ Te > 10°C for 10 minutes continuously

2

Conditions 2a

In case indoor unit is connected:

DSW 2-3	DSW 2-4	Start Conditions (OR)	Stop Conditions
ON	(*)	➤ Te ≤ -1°C for 40 minutes accumulated compressor operation time· ➤ Te ≤ A°C for 1 minute continuous after ≥ 8 minutes continuous compressor operation time	➤ Te > 7°C for 10 minutes continuously

(*) Position of DSW2-4 irrelevant

Conditions 2b

In case option box EKRPER is connected:

DSW 2-3	DSW 2-4	Start Conditions (OR)	Stop Conditions
ON	(*)	➤ Freeze-up start signal received from EKRPER	➤ Freeze-up stop signal received from EKRPER

(*) Position of DSW2-4 irrelevant
See installation manual of EKRPER for more details.

Conditions 3

Increased capacity in case of low latent heat applications

DSW 2-3	DSW 2-4	Start Conditions (OR)	Stop Conditions
OFF	ON	➤ Te ≤ -1°C for 25 min accumulated compressor operation time· ➤ Te ≤ A°C for 1 minute continuous after = 8 minutes continuous compressor operation time· ➤ Te ≤ -1°C for 1 minute after ≥ 20 minutes continuous compressor operation time	➤ Te > 7°C for 3 minutes continuously

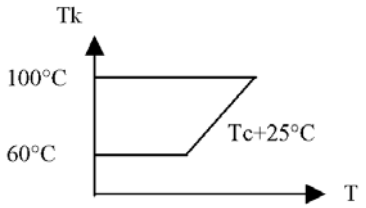
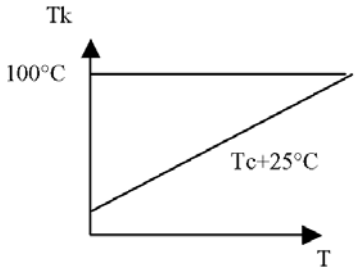
Parameters

The parameter value "A" mentioned in above conditions is decided depending on the type of indoor model as follows:

Indoor unit	Value "A"
FAYP	-1°C
FHYP	-3°C
All other indoor models	-5°C

Target discharge pipe temperature control (Tk)

When changing DS2-4 to ON, also the target discharge pipe temperature control (Tk control) is changed

DS2-4 OFF (Factory set)	DS2-3 ON (Field set)
	When Outdoor Ambient > 12°C : Factory set condition is applicable (left figure). When Outdoor Ambient ≤ 12°C : 

By allowing a lower discharge pipe temperature, the expansion valve closing will be limited, hence avoiding a drastic drop in Low Pressure.

Important remark when using "Condition 3"

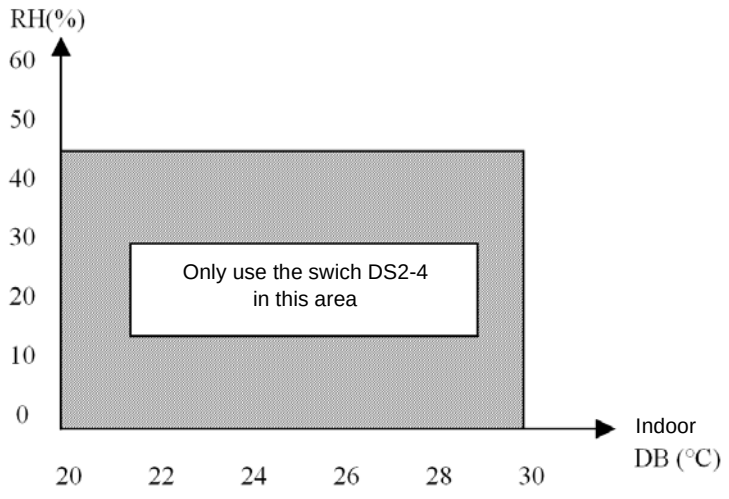
By changing DS2-4 to ON the integrated capacity increases when the outdoor temperature drops below 21°C as indicated in the table below :

	DIP switch OFF (factory setting)	**DIP switch ON**
Capacity at low temperature	100 % (*)	150 ~ 200 %

(*) Relative comparison to indicate a capacity increase of 50~100 % with dip-switch setting ON.

The integrated capacity increases due to the reduction in stand still time after a freeze-up activation.

Careful attention should be taken related to the internal humidity when selecting "conditions 3". Because of the reduced freeze-up reset conditions an increased risk of frost formation on the indoor coil or water blowing out of the indoor unit is existing when the indoor humidity exceeds the limits specified below :



Caution

- ➤ Final capacity result when using DS2-4 will depend on the total condition of the installation site.
- ➤ Be sure to take into account the restrictions towards internal humidity when using DS2-4
- ➤ Possibility of using DS2-4 should be evaluated by a professional responsible installer for each installation site.
- ➤ Do not set DS2-4 in combination with the option EKRPER.

2.4 Outdoor Fan Starting Control in Cooling or Dry Keep Mode

Applicable units

➤ R(Y)P71-125L

Purpose

The purpose is to avoid that the discharge pressure would start to rise, and stop the unit.

Method: R(Y)P71-125L

When the compressor starts, the fan keeps running for 3 min at starting fan speed. The starting fan speed depends on the ambient temperature. The different fan speeds for the according outdoor air temperatures are shown in the table below.

Operating mode	Outdoor air temp. Ta	Starting fan speed	See further in this section...
Cooling mode, dry keep mode	area 1: Ta < 3°C		Fan speed for Ta < 3°C: R(Y)P71-125L
	area 2: 3°C ≤ Ta < 10°C	L speed	Different fan speeds
	area 3: 10°C ≤ Ta < 23°C	L speed	
	area 4: Ta ≥ 23°C	HH speed	

(*) When cutting jumper J3, the 20 second timer is changed to 5 seconds

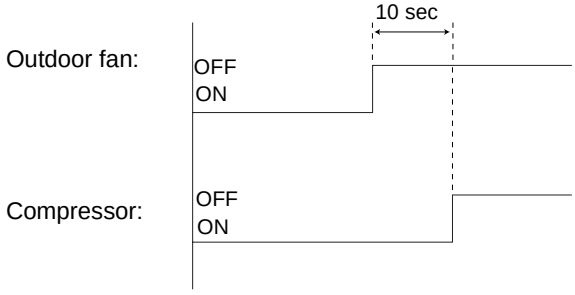
Fan speed for Ta < 3°C: R(Y)P71-125L

This fan starting control is made to be able to build up the compression ratio as soon as possible because this has two advantages:

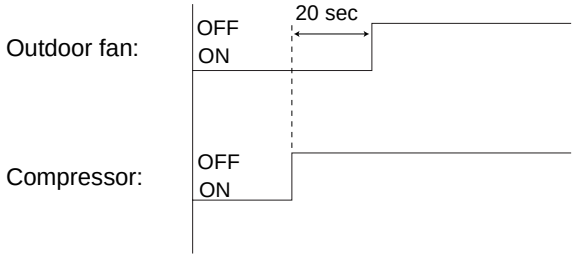
➤ It is better for the compressor to increase the compression ratio because the lubrication must be done by the pressure difference between low and high pressure.

➤ The pressure difference is necessary for the h/p models to keep the 4-way valve in its correct position.

Area 2~4:



Area 1:



2

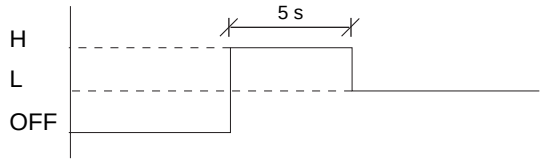
Different fan speeds

The table below explains the meaning of L, H and HH fan speed.

Fan operation	71 and 100	125	
	1 fan	Upper fan (MF1)	Lower fan (MF2)
OFF	OFF	OFF	OFF
L	L	L	L
H	H	H	H
HH	HH	HH	HH

L-tap starting compensation

When the outdoor fan is operated from OFF to L-tap, the fan motor does not turn, because of lack of starting torque. To avoid this, the fan motor operates at H-tap for the first 5 s after start-up, before changing to L-tap.



Used input

The fan starting control in cooling or dry keep mode uses the following inputs:

Input	Connection on indoor PCB	Connection on outdoor PCB
Outdoor air temperature R1T	—	X4A

2.5 Normal Outdoor Fan Control in Cooling Operation

Applicable units

R(Y)P71-125L

Purpose

The purpose of this normal outdoor fan control is to ensure a correct discharge pressure in function of the outdoor air and indoor room temperature.

Method

The table below shows in which conditions the outdoor fan works at low or high speed.

Condition	Fan Speed
Ta < -7°C	OFF
Ta < 41.7 - 0.84 x Tr	L speed
Ta > 45.7 - 0.84 x Tr	H speed
Tc > 58°C	HH speed

Ta = ambient temperature = outdoor air temperature; Tr = room suction temperature; Tc = condensing temperature (overload control)

Different fan speeds

The table below explains the meaning of L, H and HH fan speed.

Fan operation	71	100 and 125		200 and 250	
	1 fan	Upper fan (MF1)	Lower fan (MF2)	Fan 1	Fan 2
OFF	OFF	OFF	OFF	OFF	OFF
L	L	L	L	H	OFF
H	H	H	H	H	H
HH	HH	HH	HH	H	H

Used input

The normal outdoor fan control during cooling operation uses the following inputs:

Input	Connection on indoor PCB	Connection on outdoor PCB
Indoor room temperature R1T	X19A	—
Outdoor air temperature R1T	—	X4A

Low outside temperature control (Year round cooling)

The purpose of this control is to prevent freezing of the indoor heat exchanger due to a low pressure drop by reducing the air flow volume of the outdoor unit fan.

The control is activated when the outdoor temperature drops below (41.7 - 0.84 x Tr).
At this temperature, the outdoor fan speed switches to L-tap.

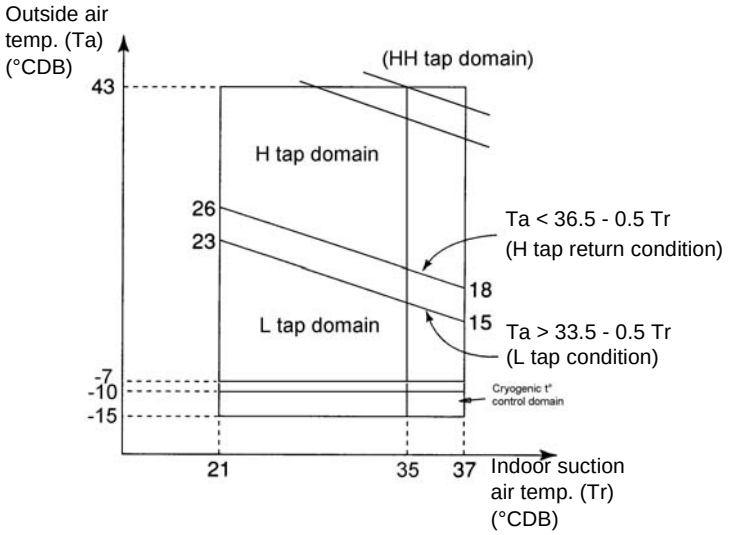
The differential for the return is 4°K.

The control is not activated during start-up control.

2

Fan speed control graph

The graph below shows the relation between inside and outside temperature and the fan speed:.

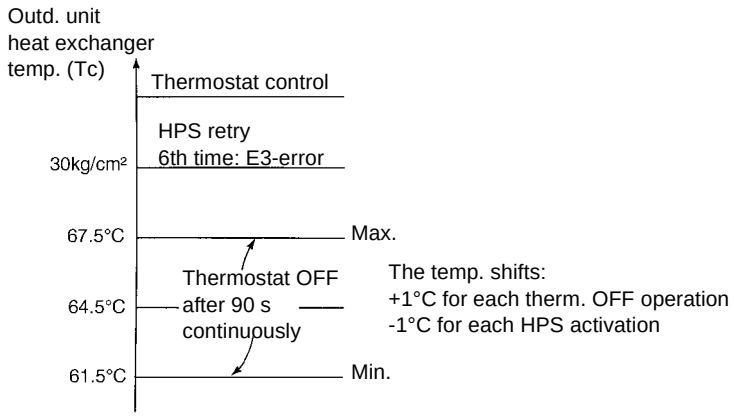


2.6 High Pressure Protection Control in Cooling Operation

Applicable units R(Y)P71-125L

Purpose The purpose of the high pressure protection is to prevent a shutdown due to an error.

Method The thermostat turns OFF immediately before HPS activation according to the outdoor heat exchanger temperature (Tc).



2.7 Condensation Avoidance Control

Applicable units

FHYP

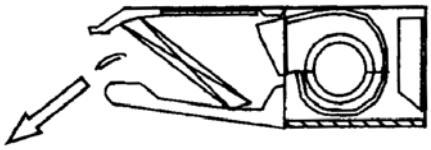
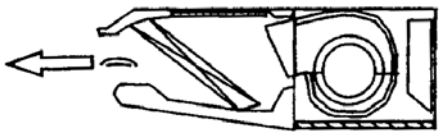
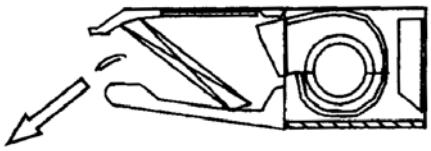
Operating modes

Regardless of whether the thermostat is ON or OFF, the condensation avoidance control can function in the following operating modes:

- ➤ Cooling (automatic), or
- ➤ Dry keep.

Method

To avoid condensation on the swing flap, the condensation avoidance control is activated:

Stage	Description
1	The fan operates in cooling mode with the blade in downward position (set on the remote controller). 
2	After 30 min, the blade moves to a horizontal position. 
3	After 1 h operation in horizontal position, the blade moves back to its downward position for 30 min. 
4	The unit operation is reset by: ➤ Changing the operating mode into “heating” or “fan”, or ➤ Changing the air flow direction, or ➤ Turning the unit operation ON or OFF.

3 Overview of the heating mode functions

3.1 What Is in This Chapter?

Introduction

This chapter contains information on the functions used to control the system during heating mode. Understanding these functions is vital when diagnosing a malfunction that is related to the functional control. This chapter is only applicable to h/p units.

Overview

This chapter contains the following topics:

Topic	See page
3.2–Defrost Control	2–40
3.3–Draft Avoidance Control 1	2–43
3.4–Draft Avoidance Control 2	2–45
3.5–4-way Valve Control	2–46
3.6–Starting Outdoor Fan Control in Heating Mode	2–47
3.7–Normal Outdoor Fan Control in Heating Mode	2–49

3.2 Defrost Control

Applicable units

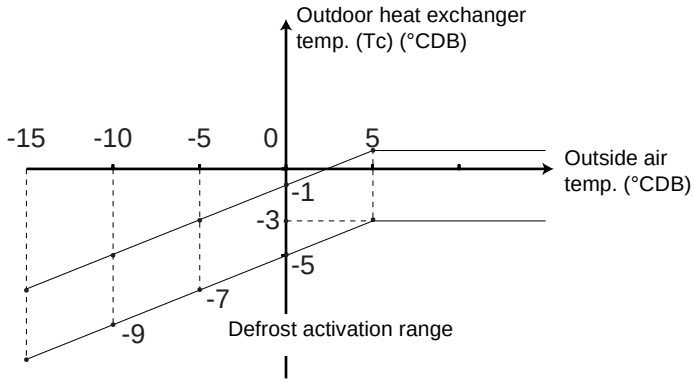
➤ RYP71-125L

Purpose

The purpose of the defrost control is to prevent frost on the outdoor heat exchanger coil. This frost forms when the unit is in heating position.

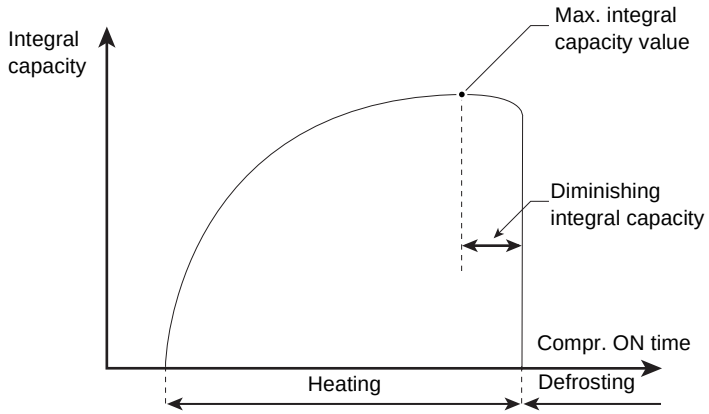
Starting conditions: RYP71-125L

The defrosting starts when either condition 1 or 2 has been realized.

Condition 1	**Condition 2**
The compressor has been running for a total of 25 min accumulated since the start of heating operation or since the end of the previous defrosting.	
➤ Outdoor heat exchanger temp. ≤ -3°C, and ➤ Outdoor heat exchanger temp. ≤ 0.4 x Ta - 5°C  	
➤ Compressor ON ≥ 5 min continuously, and integral heating capacity diminishes (see further in this section), or ➤ Ta > -5°C for 3 h accumulated (if DS1-3 is ON, 40 min), or ➤ Ta ≤ -5°C for 6 h accumulated	Above condition for 10 min accumulated.
Outdoor fan is ON (not in O.L. control)	Outdoor fan is OFF (O.L. control)

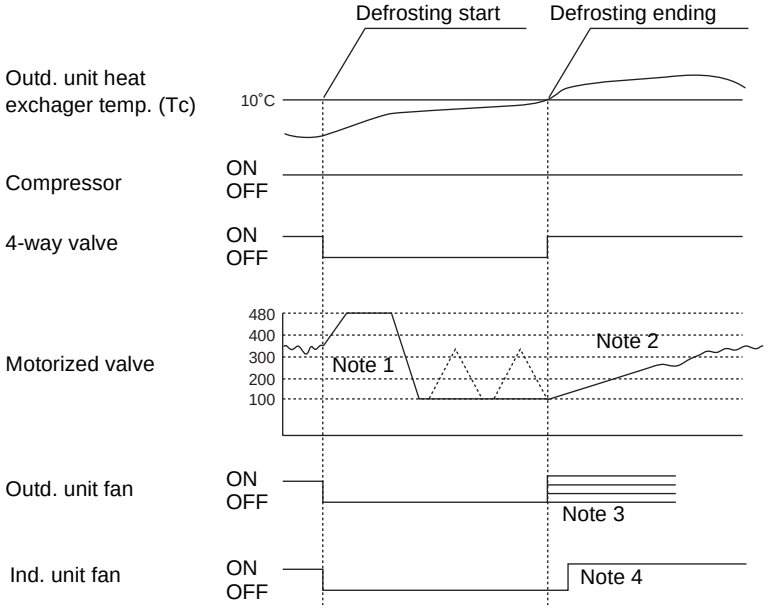
Heating integral capacity

The integral heating capacity is calculated by using the indoor unit data (R2T - R1T) divided by the compressor running time.



Defrost control RYP71-125L

The illustration below shows the defrost control.



Note	Control and time	Description
1	Motorized valve control during defrost operation	After a defrost activation, the defrost motorized valve is at 480 pulses for a certain amount of time, and is then closed gradually to 100 pulses. Only when the discharge pipe temperature is high during defrost, the motorized valve opens at intervals.
2	Motorized valve control after defrost operation	The motorized valve is controlled to an optimum opening and the most suitable operating speed, according to the operating conditions at defrost activation.
3	Outdoor unit fan after defrost operation	The fan operates at optimum fan tap, according to the operating conditions at defrost activation.

Note	Control and time	Description
4	Hot start after defrost	The unit remains in the hot start standby (indoor unit fan OFF) mode for: ➤ 40 s after defrost ending, or ➤ Until the indoor heat exchanger temperature increases.

2

Defrost ending RYP71-125L

The defrost operation ends:

➤ After 10 min, or

➤ As soon as one of the following conditions is met after 1 min or more:
- Outdoor heat exchanger temp. ≥ 10°C
- Discharge pipe temp. > 120°C.

Hot start after defrosting

The hot start function is activated:

➤ 40 s after the defrosting ending, or

➤ When Tc > 34°C (indoor heat exchanger temperature).

Used input

The defrost control uses the following inputs:

Input	Connection on indoor PCB	Connection on outdoor PCB
Outdoor thermistor	—	R1T
Outdoor heat exchanger thermistor	—	R2T
Discharge pipe thermistor	—	R3T
Defrosting start temperature changeover switch	—	DS1-2
Defrosting forced time changeover switch	—	DS2-1

3.3 Draft Avoidance Control 1

Applicable units

The draft avoidance control 1 is applicable for the following units:

Model type	Model name
Cassette	FHYCP and FUYP
Corner	FHYKP
Ceiling	FUYP
Wall	FAYP

Purpose

The purpose of the draft avoidance control 1 is to avoid draft, which is very uncomfortable for the end users.

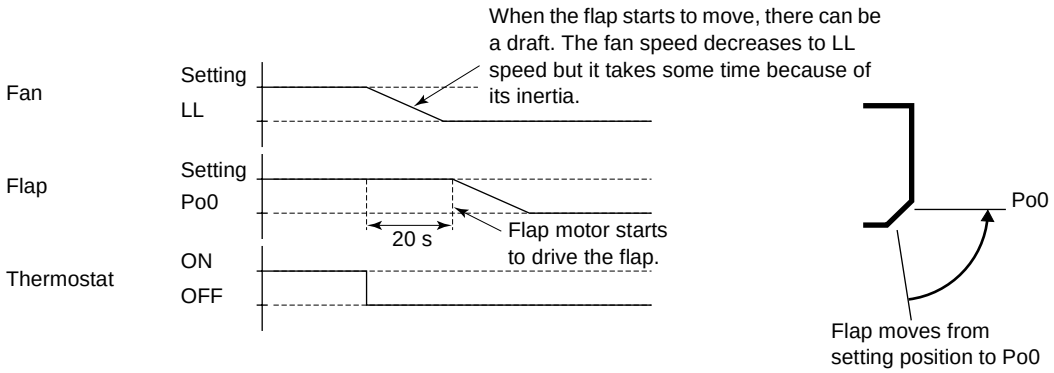
Method

The draft avoidance control 1 delays the moving of the flap setting to the Po0 position (= upper) for a certain amount of time in the following conditions:

- ➤ In heating mode and thermostat OFF, or
- ➤ In defrosting.

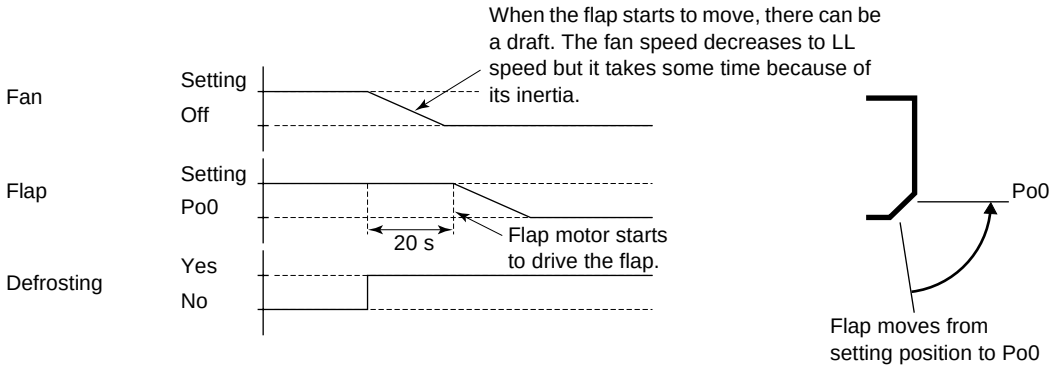
Heating mode and thermostat OFF

The time chart below illustrates the draft avoidance control 1 in heating mode and thermostat OFF.



Defrosting

The time chart below illustrates the draft avoidance control 1 in defrosting.



Used inputs

The draft avoidance control 1 uses the following inputs:

Input	Connection on indoor PCB	Connection on outdoor PCB
Limit switch for flap	33S	—
No. of fan turns	X26A	—
Outdoor heat exchanger thermistor (start and end defrosting)	—	R2T

3.4 Draft Avoidance Control 2

Applicable units

The draft avoidance control 2 is applicable for the following units:

Model type	Model name
Cassette	FHYCP and FUYP
Corner	FHYKP
Ceiling	FUYP
Wall	FAYP

Purpose

The purpose of the draft avoidance control 2 is to avoid draft when the flap is moving.

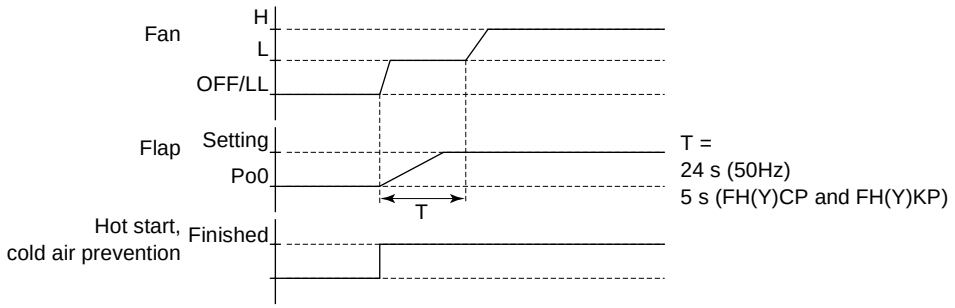
Starting conditions

The draft avoidance control 2 is activated when:

- ➤ Hot start is finished, or
- ➤ Cold air prevention control is finished.

Time chart

If the fan speed is set to “H”, the fan turns at low speed for a certain amount of time.



Used input

Draft avoidance control 2 uses the following inputs:

Input	Connection on indoor PCB	Connection on outdoor PCB
Limit switch for flap	33S	—
No. of fan turns	X26A	—

3.5 4-way Valve Control

Applicable units

RYP71-125L

Purpose

The purpose of the 4-way valve control is to control how the superheated refrigerant passes through the 4-way valve. The 4-way valve control carries out the changeover switching of the 4-way valve. This changeover switching is only carried out during operation, because pressure difference is required to move the internal cylinder.

When...	Then the 4-way valve connects the outlet of the compressor with...
Cooling	Outdoor heat exchanger.
Heating	Indoor heat exchanger.

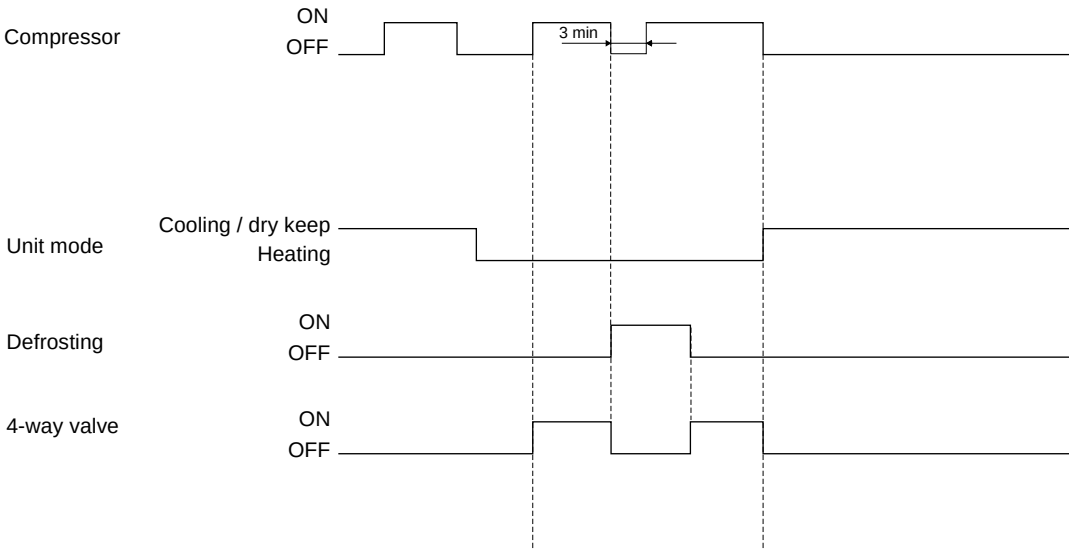
Method

The table below describes the 4-way valve control operation.

In...	The 4-way valve is...
Heating, except for defrosting	ON
➤ Cooling ➤ Dry keep ➤ Defrosting	OFF

Time chart

The time chart below illustrates the 4-way valve control.



Used input

The 4-way valve control uses the following inputs:

Input	Connection on indoor PCB	Connection on outdoor PCB
Indoor air temperature R1T (auto changeover)	X19A	—
Outdoor heat exchanger temperature R2T (defrost)	—	X5A

3.6 Starting Outdoor Fan Control in Heating Mode

Applicable units

RYP71-125L

Purpose

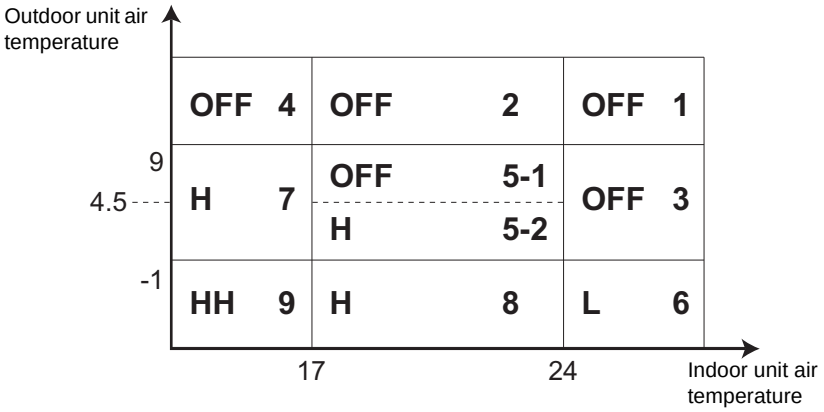
The purpose of the starting outdoor fan control is to control the fan speed in function of the indoor and outdoor unit air temperature.

Method

The illustration below shows the fan starting control in heating mode.

- ➤ LPS is not detected for 3 min after start-up.
- ➤ The starting fan speed lasts 5 min. The fan speed stays at H for the first 5 s if it is switched from OFF to L.

The fan operating areas 1 ~ 9 are indicated.



Different fan speeds

The table below explains the meaning of L, H and HH fan speed.

Fan operation	71 and 100	125	
	1 fan	Upper fan (MF1)	Lower fan (MF2)
OFF	OFF	OFF	OFF
L	L	L	L
H	H	H	H
HH	HH	HH	HH

Used input

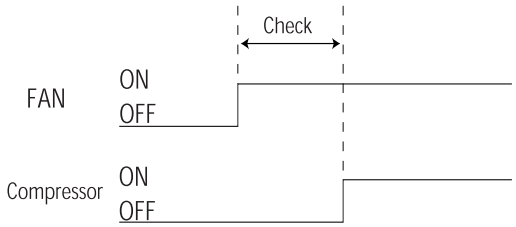
The outdoor fan starting control in heating mode uses the following inputs:

Input	Connection on indoor PCB	Connection on outdoor PCB
Outdoor thermistor	—	R1T
Suction thermistor	R1T	—
Outdoor coil thermistor	—	R2T

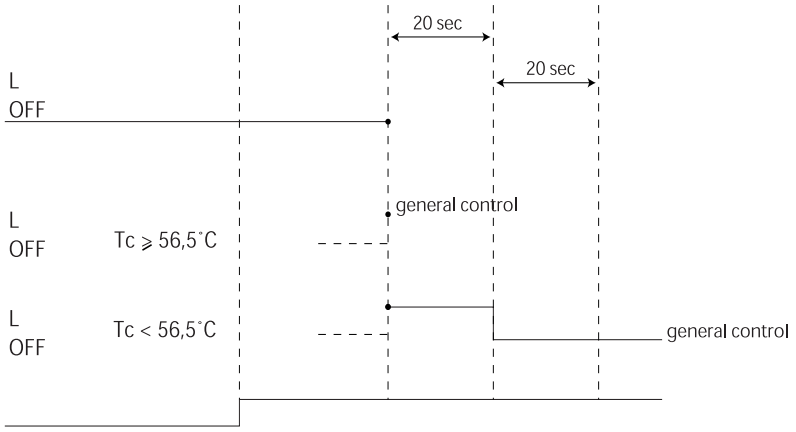
2

Time charts

Area 2~9:



Area 1:



3.7 Normal Outdoor Fan Control in Heating Mode

Applicable units

RYP71-125L

Purpose

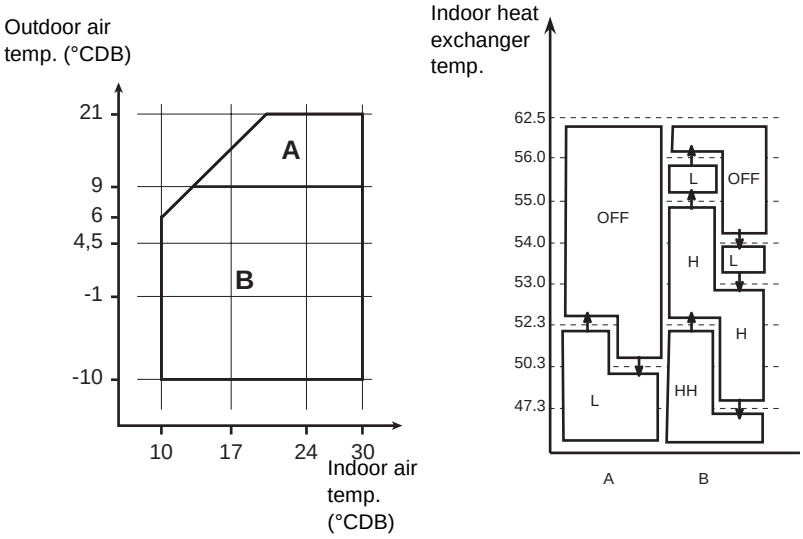
The purpose of the normal outdoor fan control is to:

- ➤ Reduce the chance of overload during high ambient temperature.
- ➤ Reduce the chance of icing up.

Method

Normal fan control operation is done after 5 min of starting fan control operation.

The operation range is divided into three areas (A, B and C).



Example

For area A, the fans go:

- ➤ From L speed to OFF at 52.3°C
- ➤ From OFF to L speed at 50.3°C.

Different fan speeds

The table below explains the meaning of L, H and HH fan speed.ì

Fan operation	71 and 100	125	
	1 fan	Upper fan (MF1)	Lower fan (MF2)
OFF	OFF	OFF	OFF
L	L	L	L
H	H	H	H
HH	HH	HH	HH

Used input

The normal outdoor fan control during heating operation uses the following inputs:

Input	Connection on indoor PCB	Connection on outdoor PCB
Outdoor thermistor	—	R1T
Suction thermistor	R1T	—
Indoor heat exchanger thermistor	R2T	—

Part 3
Troubleshooting

What is in this part? This part contains the following chapters:

Chapter	See page
1–Troubleshooting	3–3
2–Error Codes: Indoor Units	3–25
3–Error Codes: Outdoor Units	3–37
4–Error Codes: System Malfunctions	3–61
5–Additional Checks for Troubleshooting	3–71

1 Troubleshooting

1.1 What Is in This Chapter?

Introduction

When a problem occurs, you have to check all possible malfunctions. This chapter gives a general idea of where to look for malfunctions.

Not all repair procedures are described. Some procedures are considered common practice.

Overview

This chapter contains the following topics:

Topic	See page
1.2–Overview of General Problems	3–4
1.3–Emergency Operation and Checking with the Wired Remote Controller	3–6
1.4–Procedure of Self-Diagnosis by Remote Controller	3–7
1.5–Checking with the Wireless Remote Controller Display	3–8
1.6–Self-Diagnosis by Wired Remote Controller	3–12
1.7–Remote Controller Display Malfunction Code and Contens	3–13
1.8–Troubleshooting with the Indoor Unit LEDs and the Remote Controller	3–15
1.9–Troubleshooting with the Remote Controller: Outdoor Malfunctions	3–16
1.10–Troubleshooting with the Remote Controller: System Malfunctions	3–17
1.11–Overview of the Indoor Safety Devices	3–18
1.12–Overview of the Outdoor Safety Devices	3–19
1.13–Outdoor Safety Device: Thermal Protector Fan Motor	3–20
1.14–Outdoor Safety Device: Reverse Phase Protector	3–21
1.15–Outdoor Safety Device: High-Pressure Switch	3–22
1.16–Outdoor Safety Device: Low-Pressure Switch	3–23

1.2 Overview of General Problems

Introduction

The general problems are:

- ➤ None of the indoor units operates
- ➤ Equipment operates but stops sometimes
- ➤ Some indoor units do not operate (twin / triple)
- ➤ Equipment operates but is not able to cool
- ➤ Abnormal operating noise and vibrations
- ➤ Equipment does not operate (operation light OFF)
- ➤ Poor cooling or heating
- ➤ Operation stops suddenly (operation light flashes)
- ➤ Abnormal functioning.

None of the indoor units operates

To troubleshoot, check the following:

- ➤ Make sure the rated voltage is supplied.
- ➤ Make sure the indoor unit type is compatible with the outdoor unit.
- ➤ Troubleshoot with the indoor unit LEDs.
- ➤ Make sure the address for the remote controller and indoor unit are set correctly. See page 4–5.

Equipment operates but stops sometimes

To troubleshoot, check the following:

- ➤ A power failure of 2 to 10 sine wave cycles can stop air conditioner operation.
- ➤ Cooling operation cannot be used when the outside temperature is below 0°C.
- ➤ Troubleshoot with the indoor unit LEDs. See page 3–15.

Some indoor units do not operate (twin / triple)

To troubleshoot, check the following:

- ➤ Make sure the indoor unit type is compatible with the outdoor unit.
- ➤ Troubleshoot with the indoor unit LEDs. See page 3–15.

Equipment operates but is not able to cool

To troubleshoot, check the following:

- ➤ Make sure the thermistor has not disconnected from the pipe holder.
- ➤ Troubleshoot with the indoor unit LEDs. See page 3–15.
- ➤ Check for gas shortage. See page 3–62.

Abnormal operating noise and vibrations

Make sure the required space for installation is provided. See chapters “General Outline: Indoor Units” and “General Outline: Outdoor Units”.

Equipment does not operate (operation light OFF)

To troubleshoot, check the following:

- ➤ Check if the breaker has switched OFF or the fuse has blown.
- ➤ Check if the batteries are placed in the remote controller.
- ➤ Check if the address switch is set correctly. See page 4–5.
- ➤ Check if the timer is set correctly.

Poor cooling or heating

To troubleshoot, check the following:

- ➤ Check if the filters are clean.
- ➤ Check if there is no obstruction of the air inlet or outlet of the indoor and outdoor units.
- ➤ Check if the temperature settings are correct.
- ➤ Check if all windows and doors are closed.
- ➤ Check if the air flow and air direction are set correctly.
- ➤ Check if there is no ventilation operation.

Operation stops suddenly (operation light flashes)

To troubleshoot, check the following:

- ➤ Check if the air filters are clean.
- ➤ Check if there is no obstruction of the air inlet or outlet of the indoor and outdoor units.

The operation light flashes when the following errors are detected:

- ➤ Activation of a safety device or malfunctioning thermistors.
- ➤ Transmission error between the indoor and the outdoor unit.

Abnormal functioning

The air conditioner may malfunction due to lightning or radio waves. To check, proceed as follows:

Step	Action
1	Switch OFF the breaker.
2	Switch it back ON.
3	Check the operation by trying to operate with the remote controller.

1.3 Emergency Operation and Checking with the Wired Remote Controller

Emergency operation

When the remote controller is not available or its battery is dead, you can use the emergency button on the front panel of the indoor unit :

- ➤ To start the automatic mode, press the emergency button.
- ➤ To stop the automatic mode, press the button again.

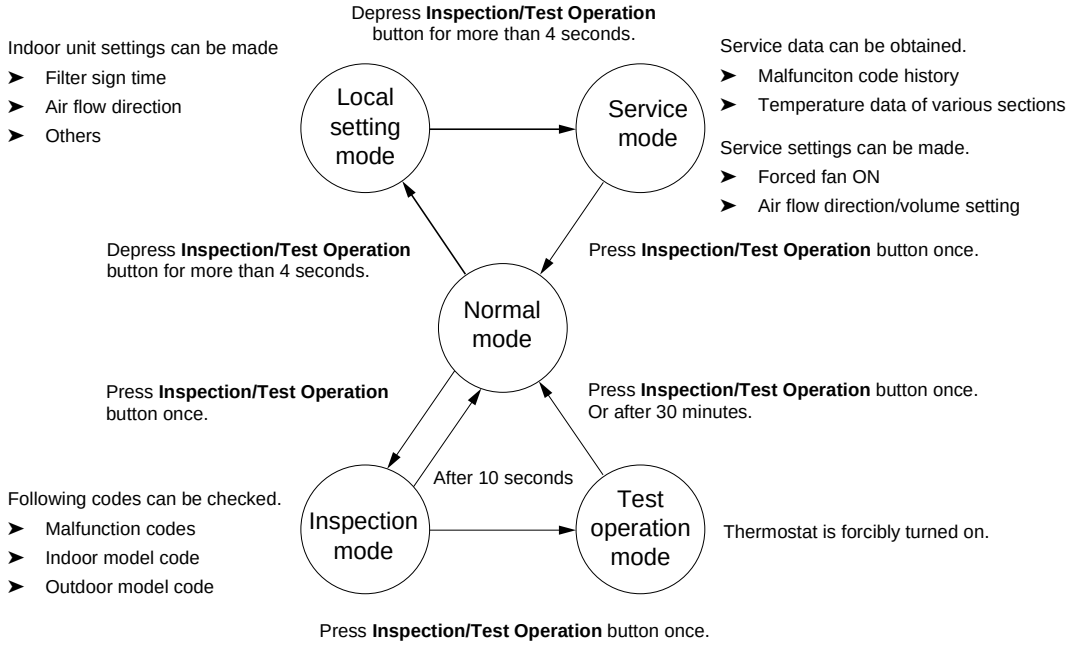
Checking with the wired remote controller

If the operation stops due to a malfunction, the remote controller's operation LED flashes, and the controller displays the error code. The error code helps you to troubleshoot. See page 3–15, 3–16 and 3–17.

1.4 Procedure of Self-Diagnosis by Remote Controller

The Inspection/Test Button: explanation

By turning the remote controller's inspection/test button ON, you can change the mode as shown in the figure below.


Depress **Inspection/Test Operation** button for more than 4 seconds.
Indoor unit settings can be made
➤ Filter sign time
➤ Air flow direction
➤ Others
Local setting mode
Service mode
Service data can be obtained.
➤ Malfunciton code history
➤ Temperature data of various sections
Service settings can be made.
➤ Forced fan ON
➤ Air flow direction/volume setting
Depress **Inspection/Test Operation** button for more than 4 seconds.
Press **Inspection/Test Operation** button once.
Normal mode
Press **Inspection/Test Operation** button once.
Press **Inspection/Test Operation** button once. Or after 30 minutes.
After 10 seconds
Following codes can be checked.
➤ Malfunction codes
➤ Indoor model code
➤ Outdoor model code
Inspection mode
Test operation mode
Thermostat is forcibly turned on.
Press **Inspection/Test Operation** button once.

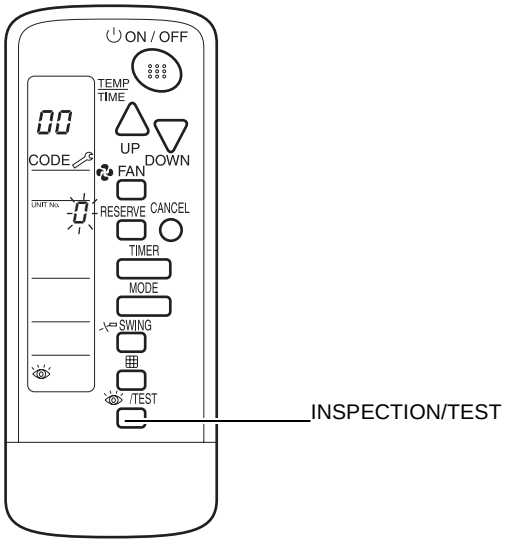
1.5 Checking with the Wireless Remote Controller Display

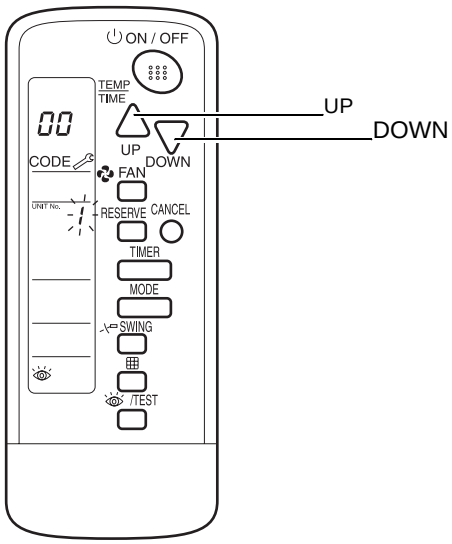
Introduction

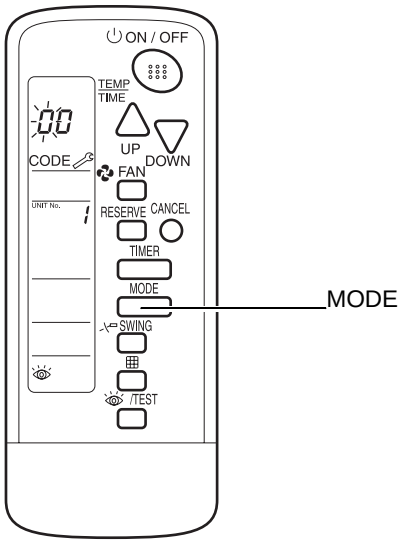
Contrary to the wired remote controller, the wireless remote controller does not display the error code. Instead, the operation LED on the light reception section flashes.

Checking

To find the error code, proceed as follows:

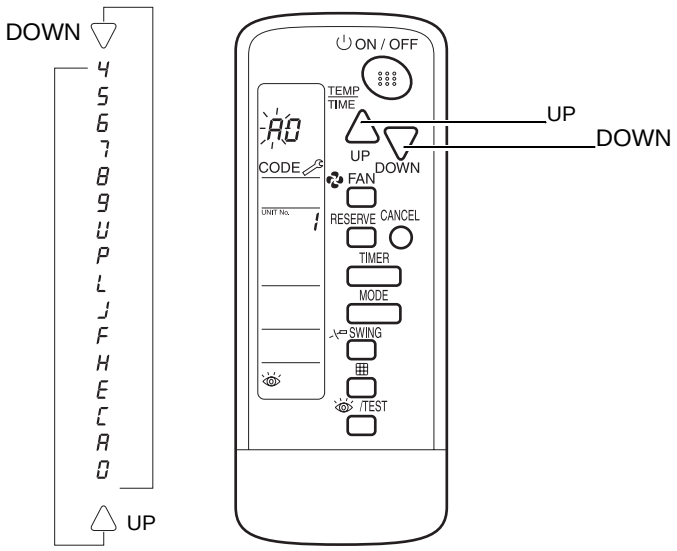
Step	Action
1	Press the INSPECTION/TEST button to select “inspection”. The equipment enters the inspection mode. “0” flashes in the UNIT No. display. 

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>2</td><td>Press the UP or DOWN button and change the UNIT No. until the receiver of the remote controller starts to beep.


<table>
<tr><th>If you hear...</th><th>Then...</th></tr>
<tr><td>3 short beeps</td><td>Follow all steps below.</td></tr>
<tr><td>1 short beep</td><td>Follow steps 3 and 4. Continue the operation in step 4 until you hear a continuous beep. This continuous beep indicates that the error code is confirmed.</td></tr>
<tr><td>1 continuous beep</td><td>There is no abnormality.</td></tr>
</table>
</td></tr>
<tr><td>3</td><td>Press the MODE selector button.The left “0” (upper digit) indication of the error code flashes.’


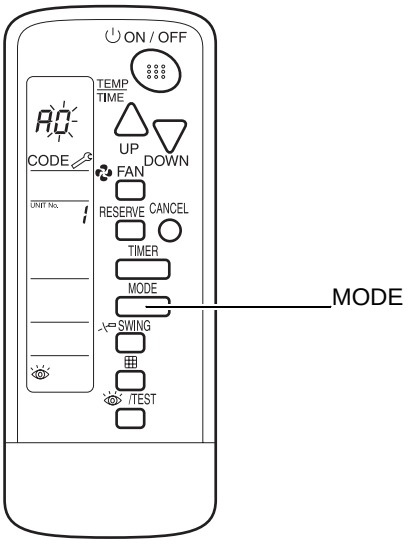
</td></tr>
</table>

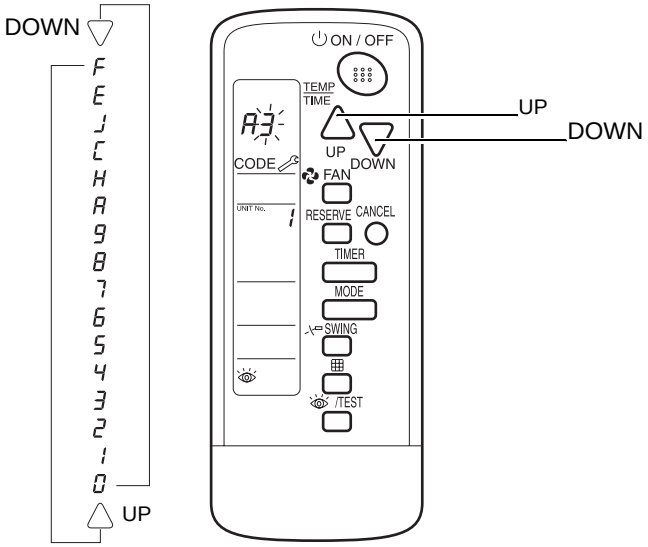
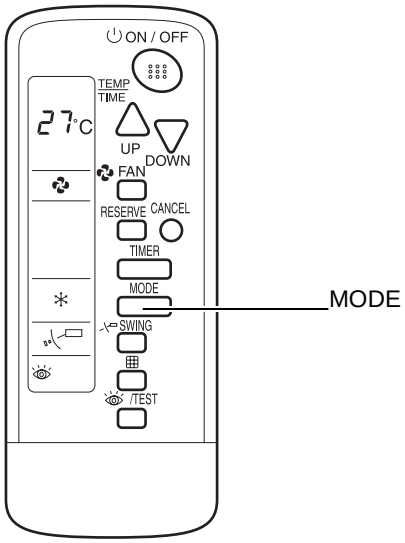
Step	Action
4	Press the UP or DOWN button to change the error code upper digit until the receiver of the remote controller starts to beep.



If you hear...	Then...
2 short beeps	The upper digit matches.
1 short beep	No digits match.
1 continuous beep	Both upper and lower digits match.

5	Press the MODE selector button.The right “0” (lower digit) indication of the error code flashes.

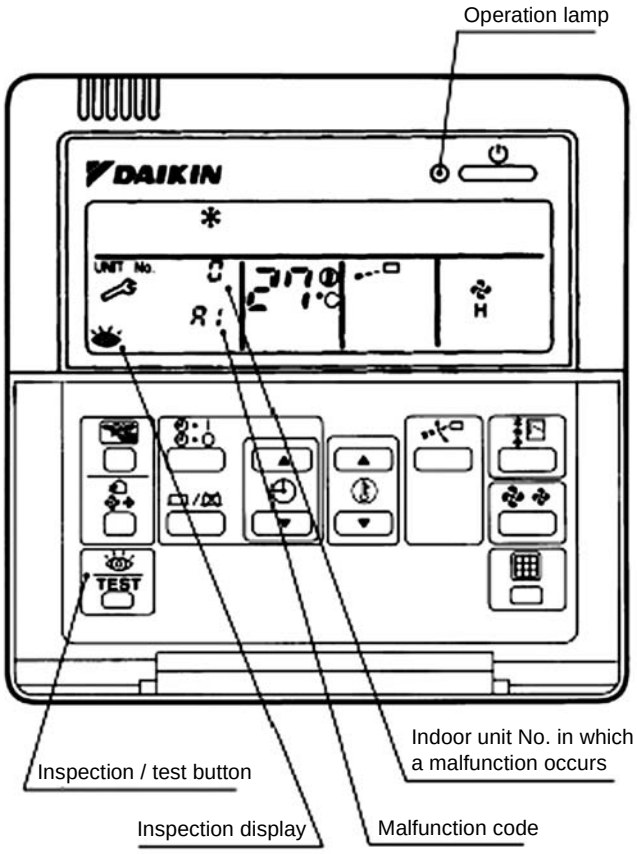


Step	Action
6	Press the UP or DOWN button and change the error code lower digit until the receiver of the remote controller generates a continuous beep. 
7	Press the MODE button to return to normal status. If you do not press any button for at least 1 min, the remote controller returns automatically to normal status. 

1.6 Self-Diagnosis by Wired Remote Controller

Explanation

If operation stops due to malfunction, the remote controller's operation LED blinks, and malfunction code is displayed. (Even if stop operation is carried out, malfunction contents are displayed when inspection mode is entered.) The malfunction code enables you to tell what kind of malfunction caused operation to stop. See page 3-13 for malfunction code and malfunction contents.
<New Remote Controller> BRC1D527



1.7 Remote Controller Display Malfunction Code and Contens

Malfunction Code	Contents/Processing	Remarks
A1	Failure of PC board ass'y for indoor unit	
A3	Malfunction of water level system	
A6	Indoor unit fan motor overload / overcurrent / lock	
AF	Malfunction of water level system	Float switch is OFF during indoor unit stops.
AJ	Failure of capacity setting	Either capacity data is set incorrectly, or capacityhas not been set for the data IC
C4	Malfunction of heat exchanger temperature sensor system	
C9	Malfunction of suction air temperature sensor system	
CJ	Malfunction of remote control temperature sensor system	The remote controller thermistor does not function, but the system thermostat operation is possible.
E0	Actuation of safety device (outdoor unit)	
E1	Outdoor P.C. board malfunction	
E3	High pressure malfunction (outdoor unit)	
E4	Low pressure malfunction (outdoor unit)	
E6	Compressor overcurrent	
E9	Malfunction of electronic expansion valve (outdoor unit)	
F3	Discharge pipe temperature malfunction (outdoor unit)	
F6	Heat exchanger temperature abnormal	
H3	Failure of high pressure switch (outdoor unit)	
H9	Malfunction of outdoor air temperature sensor system (outdoor unit)	(See Note below)
J2	Malfunction of current sensor system	
J3	Malfunction of discharge pipe temperature sensor system (outdoor unit)	
J6	Malfunction of heat exchanger temperature sensor system (outdoor unit)	(See Note below)
PJ	Failure of capacity setting (outdoor unit)	Either capacity data is set incorrectly, or capacity has not been set for the data IC
U0	Malfunction of suction pipe temperature	
U1	Reverse phase Switch R.S.T. of the 3-phase power supply.	

Malfunction Code	Contents/Processing	Remarks
U4 or UF	Failure of transmission (between indoor and outdoor unit)	Wrong wiring between indoor and outdoor units or malfunction of the PC board mounted on the indoor and the outdoor units. If UF is shown, the wiring between the indoor and outdoor units is not properly wired. Therefore, immediately disconnect the power supply and correct the wiring. (The compressor and the fan mounted on the outdoor unit may start operation independent of the remote controller operation.)
U5	Failure of transmission (between indoor unit and remote controller)	Transmission between indoor and remote controller is not being correctly carried out.
U8	Failure of transmission (between "main" and "sub" remote controller	Transmission between "main" and "sub" remote controller is not being correctly carried out.
UA	Failure of field setting	System setting mistake for Twin system.
UC	Address duplication of central remote controller	

➤ In the case of the shaded error codes, "inspection" is not displayed. The system operates, but be sure to inspect and repair it.

Note Operation when a malfunction occurs may differ according to the model.

1.8 Troubleshooting with the Indoor Unit LEDs and the Remote Controller

Shutdown

For some errors, the system only shuts down when the error occurs several times. This means that you have to wait until the system shuts down to be able to see the flashing LED on the front panel and the error code on the remote controller.

Malfunction overview

The table below contains an overview of the indoor unit malfunctions.

If...				Then...			
LED front panel	Indoor unit LED		Remote controller display	Location of the malfunction		Malfunction description	See page
	H1P (HAP)	H2P (HBP)		Other than PCB	PCB ind. unit		
●	☀	☀	Note 1	—	—	Normal	—
☀	☀	☼	A1	—	○	Malfunctioning Indoor PCB (A1)	3–26
	☀	●					
	☼	—					
	●	—					
	☀	☀	A3	◎	—	Malfunctioning Drain Water Level System (A3)	3–27
			A6	◎	□	Indoor Unit Fan Motor Lock (A6)	3–29
			AF	◎	○	Malfunctioning Drain System (AF)	3–31
			AJ	◎	○	Malfunctioning Capacity Setting (AJ)	3–32
			C4 or C9	◎	□	Thermistor Abnormality (C4 or C9)	3–34
			CJ	◎	○	Malfunctioning Remote Controller Air Thermistor (CJ)	3–36

Symbols and notes

The table below describes the symbols and notes used in the malfunction overview.

Symbol / note	Description
Note 1	Variety of circumstances
☼	LED is ON
☀	LED is flashing
●	LED is OFF
◎	High probability of malfunction
○	Low probabiltiy of malfunction
□	No possibility of malfunction (do not replace)

1.9 Troubleshooting with the Remote Controller: Outdoor Malfunctions

Malfunction overview

The table below contains an overview of the outdoor unit malfunctions.

Outdoor Unit Malfunctions	Remote Controller Display	Location of Malfunction				Contents of Malfunction	Details of Malfunction (Reference page)
		Other than PC Board	PC Board				
			Outdoor Unit	Indoor unit	Remote Contr.		
	E0	◎	☐	—	—	Actuation of safety device	3–38
	E1	—	○	—	—	Outdoor P.C. board malfunction	3–43
	E3	◎	—	—	—	High pressure system (HPS) malfunction	3–44
	E4	◎	—	—	—	Low pressure system (LPS) malfunction	3–46
	E6	◎	☐	—	—	Compressor Overcurrent	3–48
	E9	◎	☐	—	—	Malfunction of electronic expansion valve	3–50
	F3	◎	☐	—	—	Discharge pipe temperature malfunction	3–52
	F6	◎	—	—	—	Malfunction of heat exchanger temperature	3–57
	H3	◎	☐	—	—	Failure of high pressure switch	3–54
	H9	◎	☐	—	—	Malfunction of outdoor air temperature sensor system	3–55
	J2	—	○	—	—	Malfunction of current sensor system	3–59
	J3	◎	☐	—	—	Malfunction of discharge pipe temperature sensor system	3–56
	J6	◎	☐	—	—	Malfunction of heat exchanger temperature sensor system	3–57
	PJ	◎	☐	—	—	Failure of capacity setting	3–60

Symbols and notes

The table below describes the symbols and notes used in the malfunction overview.

Symbol / note	Description
◎	High probability of malfunction
○	Low probabiltiy of malfunction
☐	No possibility of malfunction (do not replace)

1.10 Troubleshooting with the Remote Controller: System Malfunctions

Malfunction overview

The table below contains an overview of the system malfunctions.

If...	Then...					
Rem. contr. display	Location of the malfunction				Malfunction description	See page
	Other than PCB	PCB outd. unit	PCB ind. unit	Rem. contr.		
U0	◎	—	—	—	Gas Shortage Detection (UO)	3–62
U1	◎	□	—	—	Reverse Phase (U1)	3–63
U4 or UF	◎	○	○	—	Transmission Error between Indoor and Outdoor Unit (U4 or UF)	3–65
U5	◎	—	○	○	Transmission Error between Indoor Unit and Remote Controller (U5)	3–67
U8	◎	—	○	○	Transmission Error between MAIN Remote Controller and SUB Remote Controller (U8)	3–68
UA	◎	—	○	—	Malfunctioning Field Setting Switch (UA)	3–69

Symbols and notes

The table below describes the symbols and notes used in the malfunction overview.

Symbol / note	Description
◎	High probability of malfunction
○	Low probabiltiy of malfunction
□	No possibility of malfunction (do not replace)

1.11 Overview of the Indoor Safety Devices

Overview

The table below contains an overview of the indoor safety devices.

Applicable unit	Thermal protector fan motor		Thermal fuse fan motor
	Abnormal	Reset (automatic)	
FH(Y)C(P)	> 130 ± 5°C	< 83 ± 20°C	N.A.
FHYBP	N.A.	N.A.	> 152°C
FH(Y)(P)	> 130 ± 5°C	< 83 ± 20°C	N.A.
FUYP	> 130 ± 5°C	< 83 ± 20°C	N.A.
FDYP	N.A.	N.A.	> 160°C
FAYP	> 130 ± 5°C	< 83 ± 20°C	N.A.
FH(Y)K(P)	> 120 ± 5°C	< 105°C	N.A.
FDYMP	N.A.	N.A.	>152°C

1.12 Overview of the Outdoor Safety Devices

Overview

The table below contains an overview of the outdoor safety devices.

Applicable outdoor unit	Reverse phase protector	Overload contact compressor	Thermal protector fan motor	Overcurrent relay compressor	High-pressure switch	Low-pressure switch
RP71L7V1	—	—	X	—	X	X
RYP71L7V1						
RP71L7W1	X					
RYP71L7W1						
VRP100L7V1	—					
RYP100L7V1						
RP100L7W1	X					
RYP100L7W1						
RP125L7W1						
RYP125L7W1						

1.13 Outdoor Safety Device: Thermal Protector Fan Motor

Thermal protector fan motor

The table below describes the thermal protector of the fan motor.

Applicable outdoor unit	Wiring symbol	Location safety	Settings		Type
			Abnormal	Reset	Reset
RP71L7V1	Q1M	Outdoor fan motor Q1M connected to X11A Q2M connected to X12A	> 135±5°C	< 95±15°C	Automatic
RYP71L7V1					
RP71L7W1					
RYP71L7W1					
RP100L7V1					
RYP100L7V1					
RP100L7W1					
RYP100L7W1					
RP125L7W1	Q1M and Q2M				
RYP125L7W1					

1.14 Outdoor Safety Device: Reverse Phase Protector

Reverse phase protector

The table below describes the reverse phase protector.

Applicable outdoor unit	Wiring symbol	Location safety	Type Reset
RP71L7V1	No reverse phase protector		
RYP71L7V1			
RP71L7W1	PRC	Switch Box	Automatic and power OFF
RYP71L7W1			
RP100L7V1	No reverse phase protector		
RYP100L7V1			
RP100L7W1	PRC	Switch box	Automatic and power OFF
RYP100L7W1			
RP125L7W1			
RYP125L7W1			

1.15 Outdoor Safety Device: High-Pressure Switch

High-pressure switch

The table below describes the high-pressure switch.

Applicable outdoor unit	Wiring symbol	Location safety	Settings		Type
			Abnormal	Reset	Reset
RP71L7V1	S1PH	Discharge pipe	> 33 Bar	< 25.5 Bar	Automatic
RYP71L7V1					
RP71L7W1					
RYP71L7W1					
RP100L7V1					
RYP100L7V1					
RP100L7W1					
RYP100L7W1					
RP125L7W1					
RYP125L7W1					

1.16 Outdoor Safety Device: Low-Pressure Switch

Low-pressure switch

The table below describes the low-pressure switch.

Applicable outdoor unit	Wiring symbol	Location safety	Settings		Type
			Abnormal	Reset	Reset
RP71L7V1	S1LP	Low-pressure switch located in suction pipe	< -0.3 bar	> +0.5 bar	Automatic
RYP71L7V1					
RP71L7W1					
RYP71L7W1					
RP100L7V1					
RYP100L7V1					
RP100L7W1					
RYP100L7W1					
RP125L7W1					
RYP125L7W1					